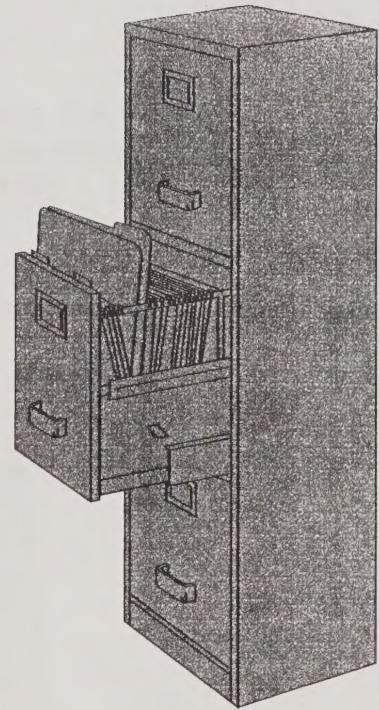
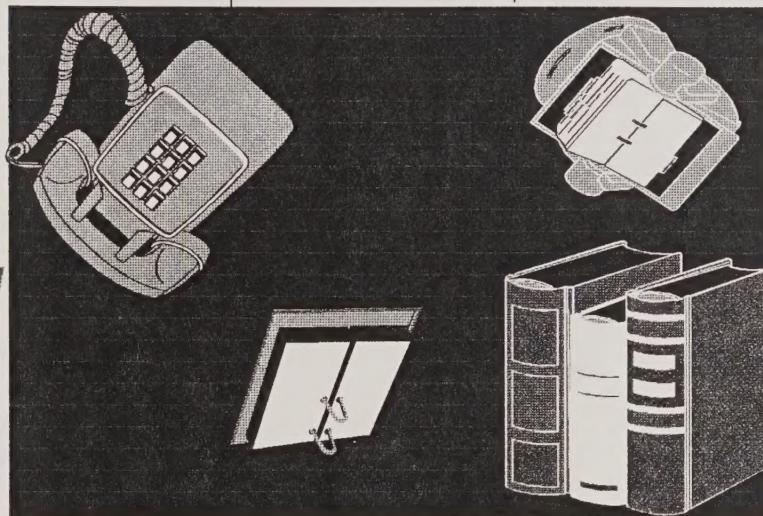
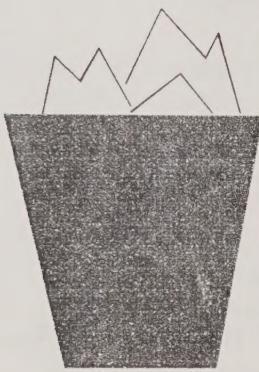
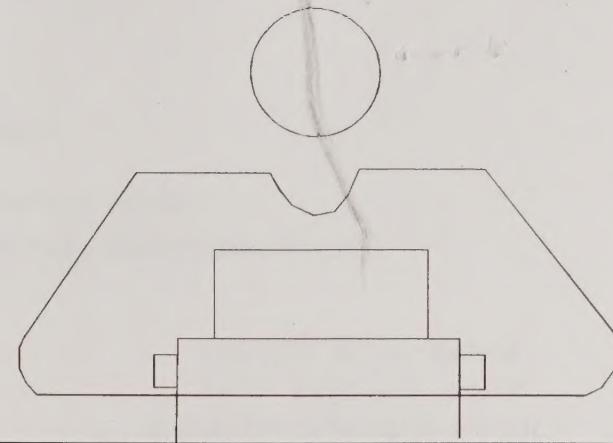


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SHORT SUBJECTS AND TIMELY TIPS FOR PESTICIDE USERS

1996

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DOD TO REDUCE PESTICIDE USE BY 50% BY YEAR 2000

In making a commitment to reduce its pesticide use by 50% by the year 2000, DOD has joined with EPA as a partner in a program called Pesticide Environmental Stewardship Program (PESP). DOD's primary tool in reducing pesticide use will be integrated pest management.

PESP resulted from the Pesticide Use/Risk Reduction Initiative which was jointly adopted by EPA, USDA and the US Food and Drug Administration in 1993. Primary goals of the initiative are: "development of specific use/risk reduction strategies that include reliance on biological pesticides and other approaches that are safer than traditional chemical methods; and, by the year 2000, having 75 percent of U.S. agricultural acreage adopt integrated pest management programs." PESP's work is directed towards the first goal while USDA's is focusing on the second. For additional information about PESP, contact the hotline at 1-800-972-7717. (Source: *Utah Pesticide and Toxic News*, Vol. XIV, No. 5, May 1996)

For a complete copy of the article -

CONTACT: PAT SKYLER (CA) (916) 757-8343

NEW BIOLOGICAL CONTROL SYSTEM DEVELOPED

Canada's Pacific Forestry Centre has developed a system which utilizes biological agents to control unwanted hardwood tree species in managed forests. The application is done with a hand held tool which perforates a tree trunk and inserts one or more pellets containing a pathogenic fungus. (Source: *The Georgia Pest Management News Letter*, Vol. 18, No. 6, June 20, 1996)

For more information -

CONTACT: PACIFIC FORESTRY CENTRE (BC) (604) 363-0600

IPM CENTER AT DAVIS, CA

President Clinton is expected to sign a \$3.5 million bill to construct an integrated pest management center on the University of California, Davis campus. This proposal is part of a \$36 million spending bill to operate two pest control centers - one at UC Riverside and the other at UC Davis. Robert Washino, UCD professor emeritus, has worked for years to bring this project to a near reality. The Center will focus on both biological control and biological technology for agriculture and native plants. (Source: *The Davis Enterprise*, August 4, 1996)

CONTACT: JACK BARRY (CA) (916) 757-8342

household insecticide. Results showed that the solvent did not peak until 10-12 hours after spraying and remained elevated after 24 hours. Clearly buildings should be ventilated after spraying. In the future expect EPA to require more explicit labeling information. (Source *Science News*, Vol. 150, No. 5, August 3, 1996)

For a complete copy of the article -

CONTACT: JACK BARRY (CA)

(916) 757-8342

PESTICIDES LOW ON THE LIST OF INJURIES

Estimated injuries in the U.S. from selected products - 1993:

Stairs, steps	1,055,355	Bunk beds	48,311
Bicycles, accessories	604,066	Trampolines	46,215
Knives	460,625	Crutches, canes, walkers	45,445
Tables	340,184	Razors, shavers	43,691
Chairs	307,066	Hot water	43,250
Nails, screws, tacks	233,627	Chain saws	40,149
Bathtubs, showers	151,852	Shopping carts	37,304
Ladders	141,616	Television	36,457
Drinking glasses	127,232	Contact lenses	33,162
Fences, fence posts	126,980	Pens, pencils	30,683
Carpets, rugs	116,201	Scissors	28,998
Drugs, medications	115,814	Paper money, coins	28,592
Metal containers	105,879	Skateboards	27,718
Bottles, jars	100,536	Refrigerators	27,337
Footwear	94,228	Baby walkers, jumpers	25,457
Lawn mowers	71,598	Gasoline	20,092
Sinks, toilets	63,192	Pins, needles	19,486
Wheelchairs	61,133	Phones, accessories	18,899
Sleds	55,260	Iron	16,447
Hammers	52,882	Pesticides	16,281
Jewelry	51,017		

Note: National estimates based on injuries in hospital emergency rooms participating in National Electronic Injury Surveillance System. Patients indicated injuries were related to the products, which does not mean they were caused by the product. (Source: Consumer Product Safety Commission, National Electronic Injury Surveillance System, NEISS Product Summary Report (1994) and *Utah Pesticide and Toxic News*, Vol. XIV, No. 5, May 1996)

CENTER FOR VECTOR BORNE DISEASES ESTABLISHED AT UC DAVIS

A new research center called the Center for Vector-Borne Diseases has been established on the UC Davis campus. The Center's primary focus will be the study of diseases that are transmitted by mosquitoes, biting midges, fleas, lice and ticks. "By drawing together UC Davis researchers, who for years have been working independently in this area, we plan to build a research center of international significance," says center co-director Rance LeFebvre. Tom Scott, director of the UC Davis Mosquito Research Laboratory is co-director. A collaboration of the School of Veterinary Medicine, School of Medicine, and College of Agricultural and Environmental Sciences the Center will pay special attention to California problems and will also address vector-borne diseases occurring in developing countries and tropical areas of the world. (Source: *Dateline*, UC Davis, August 2, 1996, Vol. 9, No. 22)

For a complete copy of the article -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

THE NATIONAL AGRICULTURAL PESTICIDE IMPACT ASSESSMENT PROGRAM (NAPIAP)

The Forest Service awards NAPIAP grants to studies of the benefits and risks of pesticides registered by U.S. Environmental Protection Agency for use in forest and rangeland management, and to fill data gaps for pesticide reregistration. The Forest Health Technology Enterprise Team (FHTET) sends a call letter annually to Forest Service Region, Station, and Area offices that may collaborate with potential investigators in study proposals.

Agricultural Research Service and Forest Service each contribute fifty percent to an annual budget of approximately \$722,000. The funding available for new proposals varies from year to year, depending on funding needed to continue previously awarded, multiyear studies. In Fiscal Year 1996, Regions, Stations, and the Northeastern Area submitted 24 new proposals for NAPIAP funding. Funds were awarded to thirteen new proposals as well as six continuing studies.

The NAPIAP proposal grant cycle begins anew when Forest Service offices receive the August 28, 1996 call letter for proposals for FY 97. NAPIAP coordinators and staffs are encouraged to sponsor proposals that respond to their information needs within the framework of listed national research priorities.

For a copy of the call letter or additional information contact the Forest Service pesticide coordinator in your geographic area or subject of interest. Proposals must be submitted through a Region, Station, or Area office; proposals submitted directly to FHTET or Washington Office FHP will be

returned. The deadline for Forest Service offices to submit their proposals to FHTET is November 15. If you don't know the appropriate Forest Service office NAPIAP coordinator -

CONTACT: ALLAN BULLARD (WV) (304) 285-1562
GARY K. SMITH (OR) (503) 326-6214

HOUSE AND SENATE APPROVE FOOD QUALITY PROTECTION ACT OF 1996

A bill amending the Federal Food, Drug, and Cosmetic Act (FFD&CA) and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) was recently passed in July by both the House and the Senate. The bill is supported by the Administration and most environmental groups.

Some FIFRA Reforms included are: (1) Addressing procedures for suspension of pesticide registrations and tolerance reevaluation as part of pesticide reregistration, (2) providing for uses of existing stocks of suspended or cancelled pesticides, (3) provisions for review of pesticide registrations at least every 15 years, (4) addressing pesticide labeling issues, (5) provisions for expedited registration of reduced risk pesticides, (6) promoting use of integrated pest management practices, plus others. (Source: *Kansas Pesticide Newsletter*, August 16, 1996, Vol. 19, No. 8)

For a complete copy of the article -

CONTACT: GARY K. SMITH (OR) (503) 326-6214

ACADEMIC PRESS HAS HOME PAGE

A listing of table of contents, abstracts, and articles for viewing and downloading is available on the Academic Press homepage which can be accessed at <http://www.apnet.com>. Several journals such as *Pesticide Biochemistry and Physiology*, *Regulatory Toxicology and Pharmacology*, and *Waste Management and Research* can be accessed free of charge. (Source: Dr. Charles A. Miller, Tulane University School of Public Health and Tropical Medicine)

For a complete copy of the article -

CONTACT: GARY K. SMITH (OR) (503) 326-6214

THE INTERNET AND AGRICULTURE

There is an article in the May 1996 issue of *Resource* on "Using the Internet for Agricultural Business" by Pedro S. Zazueta. The article answers many of the questions commonly asked on how to get started using the internet. For a complete copy of the article -

CONTACT: JACK BARRY (CA) (916) 757-8342

PESTICIDE DISCUSSION GROUP ON INTERNET

A series of e-mail discussion groups is being started by *Pesticide & Toxic Chemical News*. To join in, send an e-mail message to elistserver.crcpress.com and in the body of the message type SUBSCRIBE PTCN and your name. Questions and comments can then be sent to ptcn@listserver.crcpress.com (Source: *The Georgia Pest Management Newsletter*, Vol. 18, No. 6, June 20, 1996)

"WRIGHT'S PESTLAW" ON INTERNET

A free service available on the internet is Wright's PestLaw(sm). Maintained by James C. Wright, a Washington, DC attorney, it contains information on regulatory issues and information of interest to pesticide users and other individuals. It can be reached at <http://www.pestlaw.com>

(Source: *The Georgia Pest Management Newsletter*, Vol. 18, No. 6, June 20, 1996)

ANCIENT TREES

Did you know that in China the Beijing municipal government earmarks millions of dollars each year to protect and preserve its ancient trees? The trees are constantly being examined for signs of air pollution, salinity, lack of water, insects and other various signs of damage. Beijing has 304 trees that are 300+ years old; its oldest being a 3700 year old Xuanyuan cypress. California, however, tops that with what is believed to be the oldest tree alive, a 4,700 year old bristlecone pine located in northern California. (Source: *The Furrow*, January 1996 and *Resource*, April 1996)

For a full copy of the article -

CONTACT: PAT SKYLER (CA) (916) 757-8343

DESERT TO FOREST - PULP MILL FINDS ALTERNATIVE FOR FIBER SOURCE

Due to the reduction in timber available to sawmills in the Northwest, Potlatch Corporation of Lewiston, ID was on the lookout for alternatives for fiber sources. One of these alternatives was to grow their own trees. In 1992 they purchased 22,000 acres in Boardman, OR and in 1994 planted 800 acres into hybrid poplars. Plans are to plant 4,000 acres each year until they have planted the entire 22,000 acres. After extensive testing, they discovered that hybrid poplars could supply their Lewiston mill with about 700 tons a day. According to John Olson, project manager for the hybrid poplar program in Boardman, "The natural brightness of the wood will help us produce a brighter paper with less bleaching." (Source: *Resource*, June 1996)

For a complete copy of the article -

CONTACT: PAT SKYLER (CA) (916) 757-8343

FHTET NEWSLETTER

The Forest Health Technology Enterprise Team (Ft. Collins, Morgantown and Davis) has begun publication of a quarterly newsletter called *FOREST HEALTH TECHNOLOGY ENTERPRISE TEAM UPDATE*. The newsletter contains informative articles on current Enterprise Team projects, services, publications, meetings and other items of interest to the forest health community. The newsletter is available for viewing via the internet at <http://162.79.41.7/fhtet/> or if you would like to be added to the mailing list -

CONTACT: SHIRLEY WILSEY (CO) (970) 498-1500

PHYTOREMEDIAITON - PROMISING RESEARCH FOR SOIL & WATER CONTAMINATION

Most pesticides degrade rapidly after application while other natural and manmade contaminants can persist in the environment for long periods of time, presenting hazards to man, other animals, and plants.

The May conference in Arlington, VA on phytoremediation (use of plants to remove radionuclides and toxins from soil and water), reported promising opportunities for dealing with persistent contaminants.

Some of the ongoing research and demonstrations include:

SPONSOR	CONTAMINATE	REMEDIATION AGENT
Exxon	oil	Plants that stimulate or support bacteria that break down hydrocarbons.
Milton T. Gordon University of Washington and Occidental Chemical	trichloroethylene (solvent)	Poplar trees with 40-50 ft. roots to reach contaminated ground water.
Norm Terry University of Calif. Berkeley	selenium	Wetland plants to absorb and volatilize selenium.
Chevron Corp.	selenium	Cattail and bulrushes are removing 70-75% of the selenium from 10 million liters of waste water pumped daily through their wetland.
Phytotech and Russian Scientist	cesium and strontium radionuclides	Floating gardens of sunflowers that absorb radio-nuclides from Chernobyl site.
"	"	Indian mustard to remove radionuclides from soil.

Drawbacks to this technology development include - funding, cost, bias against new technology, mistrust of private sector, and suspicion from some in the environmental community. (Source *Science News*, Vol. 150, July 20, 1996)

For a complete copy of the article -

CONTACT: JACK BARRY (CA) (916) 757-8342

UPCOMING EVENTS

17-18 September 1996. **Saltcedar Management and Riparian Restoration Workshop**, Las Vegas, NV. For more information contact Scott Stenquist, U.S. Fish and Wildlife Service, Portland, OR (503) 231-6172, FAX (503) 231-2361.

26-27 September 1996. **Biocontrol Workshop**, Asheville, NC. If you have questions or would like to attend contact Chuck Parker via E-Mail Chuck.Parker@nps.gov

28 September - 4 October 1996. **Integrated Forest Vegetation Management Course** (formerly the Advanced Forest Herbicides Course), Fredericton, New Brunswick, Canada. Contact: Eileen Harvey (705) 942-5824, FAX (705) 942-8829 or E-Mail charvey@soonet.ca

6-11 October 1996. **Environmental Impacts of Forestry Practices Course**, Sault Ste. Marie, Ontario, Canada. Contact: Eileen Harvey (705) 942-5824, FAX (705) 942-8829 or E-Mail charvey@soonet.ca

24-28 August 1998. **Third International Forest Vegetation Management Conference**, Sault Ste. Marie, Ontario, Canada. Contact: IFVMC #3, Ontario Forest Research Institute, Ontario Ministry of Natural Resources, 1235 Queen St. E., Sault Ste. Marie, Ontario, Canada P6A 5N5, (705) 946-2981, FAX (705) 946-2030, Email: ifvmc3@epo.gov.on.ca

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Barry, J.W. 1996. The USDA Forest Service pesticide spray behavior and application development program - An overview. *Journal of the American Mosquito Control Association* 12(2):342-352.

Burkett, D.A., T.L. Biery, and D.G. Haile. 1996. An operational perspective on measuring aerosol cloud dynamics. *Journal of the American Mosquito Control Association* 12(2):380-383.

Bush, P.B., J.W. Taylor, and S. Cameron. 1996. Use of FSCBG to develop operational insecticide application guidelines for intensive southeastern pine management. ASAE Paper No. 961055. St. Joseph, MI.

Curtis, G.A. and E.J. Beidler. 1996. Influence of ground ULV droplet spectra on adulticide efficacy for *Aedes taeniorhynchus*. *Journal of the American Mosquito Control Association* 12(2):368-371.

Embree, D.G. 1996. Capabilities of global positioning system and data logging equipment to guide track and record application history of aircraft and ground sprayers in forest operations. Canadian Forest Service, Fredericton, NB.

Ghent, J.H., S.J. Thomas, D.B. Twardus, K.W. Gottschalk, and M.E. Teske. 1996. A demonstration of GypsES - The gypsy moth decision support system. ASAE Paper No. 961036. St. Joseph, MI.

Haile, D.G., T.L. Biery, and G.A. Mount. 1996. An expert system for aerial pesticide applications to control mosquitoes and flies using C-130 aircraft. ASAE Paper No. 961058. St. Joseph, MI.

Hall, F. 1996. Coupling cost/benefit and environmental risk assessment models for decision-makers: An overview of the opportunities. ASAE Paper No. 961034. St. Joseph, MI.

Hermannsky, C.G., D.R. Johnson, and G.F. Krause. Predictions of droplet size distribution in agricultural sprays. ASAE Paper No. 961164. St. Joseph, MI.

Mickle, M.E., N.J. Payne, and J.C. Cunningham. 1996. Comparison of modelled and measured deposit with efficacy. ASAE Paper No. 961060. St. Joseph, MI.

Mickle, R.E. 1996. Influence of aircraft vortices on spray cloud behavior. *Journal of the American Mosquito Control Association* 12(2):372-379.

Rafferty, J.E., C.A. Biltft, and J.F. Bowers. 1996. Overview of meteorological measurements for aerial spray modeling. *Journal of the American Mosquito Control Association* 12(2):364-367.

Ray, J.W., A.L. Vanner, B. Richardson, and G. Coker. 1996. Determination of the no observable effect level (NOEL) of four commonly used forestry herbicides on tomatoes. In *proceedings of the 49th New Zealand plant protection conference*. New Zealand Forest Research Institute, Rotorua, NZ.

Richardson, B., J.W. Barry, M.E. Teske, and J.W. Ray. 1996. Spraysafe manager: An aerial application decision support system that integrates predictions of deposition and drift with biological response and economic models. ASAE Paper No. 961057. St. Joseph, MI.

Teske, M.E., J.W. Barry, and B. Richardson. 1996. FSCBG sensitivity study for decision support systems. ASAE Paper No. 961037. St. Joseph, MI.

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Thistle, H.W. 1996. Atmospheric stability and the dispersion of pesticides. *Journal of the American Mosquito Control Association* 12(2):359-363.

Twardus, D.B., J.H. Ghent, S. Thomas, K. Gottschalk, M. Teske, and J. Colbert. 1996. An overview of Gypses - The gypsy moth decision support system. ASAE Paper No. 961035. St. Joseph, MI.

Williams, S.B. and D.R. Holtfrerich. 1996. A knowledge-based reasoning toolkit for forest resource management. ASAE Paper No. 961063. St. Joseph, MI.

For a copy of these publication(s) -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send articles in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA) (916) 757-8343
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The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team sponsors, compiles, edits, and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

***SHORT SUBJECTS
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RISK ASSESSMENT: NEW CONTRACTOR - NEW METHODOLOGY

With the changeover to SERA (Syracuse Environmental Research Associates) obvious changes have occurred in the Forest Service's processes for risk assessing chemicals. Also, significant changes have occurred in the documents themselves.

Gone are the multiple tables of potentially affected species, their surrogates and research analogs. Gone also are the multi-scenario tables of margins-of-safety which we all have gotten to know and love. In their place are formulas and hazard quotients for the different scenarios. Numbers, when presented, are given for plausible ranges of exposure (upper and lower plausible bounds are placed on average exposures) and the relevance of the numbers is discussed. Other new concepts used include; Fick's first law, dissociation moieties, surface retention of liquids, etc.

Gone, at least for the present, are Chemical Background Statements (CBS) as stand alone documents. The content of the traditional CBS will be found as appendix material to the second and later risk assessments (RA). (The Vanquish documents are separate [CBS and RA] and formed the basis for the decision to combine documents.)

In a radical departure from prior years, the COTR for this Forest Service contract is Leslie Rubin, a toxicologist working with APHIS. Leslie's toxicological knowledge, her background in risk assessment and her willingness to perform this task have made her a great asset in executing this contract.

Different also is the decisionmaking process for determining which RAs are done by the Forest Service under this contract. In an attempt to prioritize needed NEPA documentation and simultaneously nationalize the responsibility for this decisionmaking, the Washington Office has chartered a team to evaluate the status and needs of the Forest Service for new or updated Risk Assessments.

The current make-up of the team is: Paul Mistretta (R8 Pesticide Specialist), John Borreco (R5 Pesticide Specialist), Noel Schneeburger (NA Entomologist), Dee Dee Sellers (R8 Entomologist), Leslie Rubin (APHIS) and Dave Thomas (WO Advisor). The team is expected to meet annually to evaluate contract effectiveness and prioritize the following year's production. This decisionmaking process should ideally be influenced by both current use patterns and also by input received from pesticide users nationwide.

The change to SERA has already resulted in three readable and usable risk assessments prepared for the Forest Service and one for APHIS. A fourth Forest Service risk assessment is currently in preparation.

For further information

CONTACT: PAUL MISTRETTA
DAVE THOMAS (DC)

(404) 347-2961
(202) 205-0889

VANQUISH EVALUATED

A Chemical Background Statement (CBS) and Risk Assessment (RA) have been issued for Vanquish (diglycolamine salt of dicamba produced by Sandoz Agro Inc.). These are the first documents produced under the Forest Service's current contract with Syracuse Environmental Research Associates (SERA). The Background Statement is 95 pages long while the Risk Assessment is 102 pages.

The Background Document is just that; a summary of previous relevant research data concerning dicamba. It summarizes a thorough search of relevant documentation which relates to the various salts of dicamba.

Bullet information presented in the executive summary of the Risk Assessment includes the following:

- The EPA regards the salts of dicamba as toxicologically equivalent; the data accumulated for the dimethylamine salts of dicamba (in Banvel & other older dicamba products) referenced in previous dicamba risk assessments is relevant and considered. An uncertainty factor is, however, assigned due to the extrapolation of this data base.
- Based on exposure and dose-response assessments workers do not appear to be at substantial risk under typical operational conditions.
- Using the upper limits of the exposure rates potential reproductive effects would be of concern (data used were extremely conservative). At the lower limits of the exposure assumptions, there is no apparent cause for concern.
- There is a single exposure of concern for the public disclosed; exposure through water. However the summary concludes that monitoring studies give no indication that typical levels of exposure will approach any level of concern.
- No plausible public concern is seen from the consumption of potentially contaminated fish or vegetables.
- The assessment of ecological effects suggest no plausible or substantial hazard to animals, either terrestrial or aquatic.
- There is potential to cause negative effects to non-target vegetation (it is a herbicide). However, a consideration of the processes involved in product volatility suggests that Vanquish will be substantially less hazardous than other commonly used dicamba salts.

To receive a copy of the reports contact Dave Thomas, USDA Forest Service, DC (202) 205-0889.

For further information -

CONTACT: PAUL MISTRETTA

(404) 347-2961

TRICLOPYR RISK ASSESSMENT AVAILABLE

A Risk Assessment (RA) has been prepared for "Selected Commercial Formulations of Triclopyr - Garlon 3A and Garlon 4." (1996; 163p). This is the second document produced under the Forest Service's current contract with Syracuse Environmental Research Associates (SERA).

Bullet information presented in the executive summary of the Risk Assessment includes the following:

- The US EPA has determined that the two forms of triclopyr evaluated (amine and ester) are toxicologically equivalent.
- Analysis indicates that exposure to either form is similar in similar operations; however, dose from an ester application (Garlon 4) is greater since it is more readily absorbed than the amine (Garlon 3A).
- For workers, no exposures approach levels that are likely to produce frank signs of toxicity.
- There is a reasonable concern that workers applying the chemical over a prolonged time in the course of a single season or over several seasons could be at risk of impaired kidney function. This is a first report of this concern which suggests the need for further study of renal effects.
- For animals, secondary effects resulting from changes in vegetation appear to be of greater importance than direct toxicological effects from exposure to the triclopyrs.
- Unintentional spray of non-target plants (except for grasses) may result in damage to the plant. However, soil burden from proposed use rates is far below that which is associated with damage to nontargets.

To receive a copy of the report contact Dave Thomas, USDA Forest Service, DC, (202) 205-0889.

For further information-

CONTACT: PAUL MISTRETTA

(404) 347-2961

WHITE SPOTTED TUSSOCK MOTH IN NEW ZEALAND

On April 17, 1996, a member of the public found an unusual looking caterpillar in Auckland, New Zealand and this was subsequently identified as the white spotted tussock moth *Orgyia tigrinella*.

This species is found in Japan, Korea, Taiwan, China, and the Russian Far East, and belongs to the same family (Lymantriidae) as gypsy moth (*Lymantria dispar*). Although *Orgyia* it is not generally considered to be a major pest, many lymantriids are serious pests in other parts of the world. This, combined with a presumed absence of parasitoids and predators in New Zealand, and a favourable climate suggests that *O. thyellina* has the potential to be a significant threat to New Zealand's natural and planted forests, horticultural crops, amenity trees, and gardens.

Following identification of *O. thyellina* an intensive survey operation was initiated to delineate the extent of the infestation. The surveys showed that the species was restricted to an area with about a 1.5 km radius in suburban Auckland, New Zealand's largest city. At present the moth appears to be over-wintering while the Ministry of Forestry, in association with the NZ Forest Research Institute (FRI) and other organisations, considers the appropriate response. Feeding trials have commenced in the FRI quarantine facilities. Planning for an eradication programme is being undertaken as a contingency (no official decision to attempt to eradicate *O. thyellina* has yet been made). If an eradication programme goes ahead, the application will likely be made using a Bell 205 helicopter fitted with Micronair rotary atomizers and spraying undiluted *Bacillus thuringiensis* var. *kurstaki*. Operational details will be finalised using the FSCBG aerial spraying simulation model.

I would like to thank the USDA Forest Service for its willingness to assist with our contingency planning. Much valuable information has been provided by colleagues with experience in similar eradication programmes. — Brian Richardson, NZ Forest Research Institute, Rotorua, NZ.

CONTACT: BRIAN RICHARDSON (NZ)

07 3475 899

PESTICIDE-PROOF PLANTS LET WEEDS IN ON THEIR SECRET - A REMINDER OF NO MAGIC BULLETS

(From *Sacramento Bee*, March 8, 1996, by Robert Lee Hotz, *L.A. Times*)

"In an unsettling turnabout of modern farming's biological warfare against weeds, a team of Danish researchers reports that some genetically engineered plants designed to withstand herbicides can pass those new genes to nearby weeds, which in turn become resistant to chemicals meant to eradicate them.

Experts said the finding, reported in Thursday's edition of the journal *Nature*, is the first confirmation of what many critics of the new biotechnology have long suspected - that new traits introduced into genetically engineered crops in some instances can be inherited by nearby weeds and other wild plants that belong to the same general family."

"The plant geneticists at the Riso National Laboratory in Roskilde, Denmark, did their experiments with a commercial crop called oilseed rape, which is raised widely in Canada and Europe to produce canola oil, and a closely related weed called *Brassica campestris*. Both plants belong to the mustard family.

The researchers found that the two plant varieties 'spontaneously' cross-fertilized each other and, within a few generations, the resulting crossbreeds not only contained the new gene, but also were capable of passing on the new trait to subsequent generations."

"U.S. farmers this year are expected to grow genetically modified plants in record numbers as new seeds created by biotechnology companies reach the market. Among the new crops are sugar beets and soybeans designed to tolerate high doses of weed-killing chemicals, as well as insect-resistant varieties of maize, potatoes and cotton which reduce the need for chemical pesticides."

"Several U.S. biotechnology experts said the recent finding in Denmark was no reason for a blanket condemnation of the products from biotechnology's new horn of plenty.

'We think it has to be judged on a case-by-case basis,' said Calvin Qualset, director of the University of California's genetic resource conservation program. 'Each gene that is being introduced into a crop has to be judged on what it does to the plant and what it does to the environment in which it is grown.'"

For a complete copy of the article -

CONTACT: JACK BARRY (CA)

(916) 757-8342

HEMLOCK WOOLLY ADELGID BIOLOGICAL CONTROL UPDATE

The hemlock woolly adelgid (*Adelges tsugae*) is an Asian native that threatens eastern hemlock (*Tsugae canadensis*) and Carolina hemlock (*T. caroliniana*) in the eastern USA. Two researchers are evaluating the potential of biological control against the hemlock woolly adelgid (HWA) because chemical control has limited value in protecting forest trees.

Mark McClure (Connecticut Agricultural Experiment Station entomologist) has been evaluating a Japanese coccinellid beetle (*Pseudoscymnus sp.*). Last year he received approval to release beetles at several field locations and this spring he reports: 1) the beetles survived a very tough winter of 1995-1996; and 2) HWA abundance decreased sharply on branches exposed to the predators compared to branches where *Pseudoscymnus* was excluded.

Mike Montgomery (USDA Forest Service research entomologist at Hamden, CT) recently returned from Taiwan where he searched for new HWA natural enemies. He hopes to have additional candidates to evaluate at the USDA Forest Service quarantine laboratory in Ansonia, CT. Mike has already evaluated native natural enemies as potential predators of HWA and is working with collaborators in the People's Republic of China to collect, import, and evaluate natural enemies of HWA that are native to that country.

For more information about efforts to develop successful biological controls for HWA -

CONTACT: MARK MCCLURE (CT) (203) 688-3647
KATHLEEN SHIELDS (CT) (203) 230-4320

BIOLOGICAL CONTROL ARTICLES

In case you missed the articles by Roger B. Ryan (PNW, La Grande, OR) on biological control, you might want to review:

Ryan, R.B. 1987. Classical biological control: An overview. *Journal of Forestry* Vol. 85(7):29-31.

Ryan, R.B., S. Tunnock, and F.W. Ebel. 1987. The larch casebearer in North America. *Journal of Forestry* Vol. 85(7):33-39.

SURROGATE FOR METHYL BROMIDE - BUT?

(From *The Georgia Pest Management Newsletter*, April 22, 1996, Vol. 18(4), University of Georgia, Cooperative Extension Service)

UC Riverside has announced that they have determined that methyl iodide has been discovered to be as effective as methyl bromide without the negative potential impact to the ozone layer posed by methyl bromide. "... lab and field tests indicate that methyl iodide controls weeds, bacteria, nematodes, and insects as well as methyl bromide." Its current higher price would be expected to drop if commercial production was begun. However, "Safety and environmental testing is expected to take up to five years and cost up to \$60 million."

For additional information or a complete copy of the article -

CONTACT: PAUL MISTRETTA (GA) (404) 347-2961

SUPPRESSION OF SUBADULT *IXODES SCAPULARIS* FOLLOWING REMOVAL OF LEAF LITTER

(Shultz, T.L., R.A. Jordan, and R.W. Hung. J. Med. Entomol. 1995. 32(5): 730-733)

Abstract. Removal of leaf litter in wooded areas of a forested residential community significantly reduced the abundance of questing black-legged tick, *Ixodes scapularis* Say, nymphs throughout their peak activity period. Removal of leaf litter, using hand rakes and leaf blowers during the early spring (March) and early summer (June) resulted in reductions in nymphal tick density ranging from 72.7 to 100%. Subsequent sampling of the *I. scapularis* population during the summer revealed similar rates of suppression of larvae. Although leaf removal provides levels of suppression similar to more traditional methods, including chemical acaricides, it is labor intensive and not free of possible nontarget effects. The potential role of leaf litter removal in an integrated program to control *I. scapularis* is discussed. [Editor's Note: Removal of leaf litter, not surprisingly, by reducing tick habitat and rodent harborage, also greatly reduces the density of nymphal ticks (the primary source of infection for humans). Although very labor intensive, this technique has great promise as part of an overall integrated pest management strategy to control ticks. It may be most useful for the individual homeowner in creating a yard environment that is less favorable to ticks and their rodent hosts. In addition, it could be used to create a 'barrier' between wooded habitat and areas of high human use.]"

CAUTION: PINE FIREWOOD MAY SPREAD TREE DISEASE

(California Forest Pest Council, Press Release - June 6, 1996)

CAMBRIA, CALIFORNIA, MAY 2, 1996 – California residents are being asked to take special precautions with pine firewood to help curb the spread of an incurable tree disease that is killing thousands of Monterey and Bishop pine trees in the State.

A statewide task force is concerned that vacationing campers may unintentionally spread pine pitch canker, a fungal disease recently introduced to California, by carrying diseased pine firewood to various locations around the state. 'Our biggest fear,' explained Don Owen, Chairman of the Pine Pitch Canker Task Force, 'is that the disease could be transported to areas of the state that don't have pitch canker. Many native and ornamental pine trees are susceptible to the disease. And since there is no cure for pitch canker, limiting its spread is the key to prevention.'

Pine firewood, branches, needles, and cones may all be a source of the disease. Infested pine trees have been found in Alameda, Contra Costa, Los Angeles, Monterey, Mendocino, Orange, San Benito, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Sonoma counties. Residents of these counties are asked not to transport pine firewood

or other pine material to uninfested areas. To date, the disease has not been found in the Sierra Nevada and other heavily forested parts of the State. It does not affect humans, pets or other plants.

Owen says that the concern over the spread of pine pitch canker should not prevent citizens from enjoying camp fires, provided precautions are taken to minimize the spread of disease:

If you are traveling from an infested area to camp elsewhere, do not transport pine firewood out of the infested area. Purchase firewood at your destination.

If you are camping within an infested area, use up or leave behind any pine firewood you have with you. This should be done even if you brought the firewood with you from an uninfested area.

If you are uncertain that you might be transporting diseased pine firewood, take another type of firewood with you when you go camping, such as oak or cedar.

Further information on pine pitch canker disease may be obtained by contacting your local Agricultural Commissioner's office, California Department of Forestry and Fire Protection forester, or city forester."

CONTACT: DON OWEN (CA)

(916) 224-2494

IMIDACLOPRID TEST

(From Virginia Department of Forestry, *Forest Health Review*, April 1996)

"In 1994, a 10 lb. lot of loblolly pine seed was treated with the relatively new systemic insecticide, imidacloprid, a product of Miles Inc. (a division of Bayer Corp.). There was already some evidence that this chemical can be taken up by seeds and will protect seedlings that develop from them against certain pests. With excellent cooperation from nursery personnel and the Accomack, Bedford, Brunswick, Caroline, Charles City, Powhatan, Pittsylvania and Sussex work units, seedlings from the treated seed were lifted and planted operationally in the spring of 1995 on over a dozen tracts, along with seedlings from untreated seed. Recently completed examinations of these tracts showed that the treatment reduced tip moth damage and had no apparent effect on regeneration weevils. On every tract that had tip moth infestation the treated seedlings sustained a lower percentage of tip moth injury than did untreated trees. Overall, 23% of seedlings from treated seed and 44% of seedlings from untreated seed exhibited symptoms of tip moth infestation. In addition, infested seedlings from untreated seed sustained a higher proportion of total tip infestation and terminal bud loss than did infested seedlings from treated seed. All of these differences are highly significant statistically and, more importantly, demonstrate potential for a safe and practical approach to early tip moth suppression. With insecticide provided by Miles, Inc. and with generous

help from our nursery personnel a rate test has been initiated. Treated seed will be sown this spring and next year test seedlings will be available for planting. If any of the treatments exhibits good efficacy we will then establish a long term study to evaluate the ultimate benefits of treatment."

CONTACT: TIM TIGNER OR BONNIE RAGLAND (VA) (804) 977-6555

PREVENTING LYME DISEASE

Lyme disease was first recognized in the United States in 1975. By 1982, it was prevalent enough to be considered a reportable disease by the federal Centers for Disease Control (CDC). Today, with over 80,000 cases having been reported, it is the most common vector-borne illness (in this case tick-borne) in the US.

Knowledge and information are key to protecting one's self from Lyme disease. People, especially those in high risk outdoor occupations - or endeavors - should know the symptoms of the disease and how it is transmitted. They should know what the ticks that carry the disease look like - and their range and prevalence. People should know how to protect themselves against tick bites and what to do if bitten. It is our responsibility to provide our employees and visitors with this type of knowledge and information.

There is a multitude of posters, leaflets, fact sheets, and other types of educational materials about Lyme disease. Most of these materials are available, free of charge, from various organizations and institutions. There are several public disease telephone hotlines and newsletters. The World Wide Web has also become an excellent source for materials and information about Lyme disease. For more information -

CONTACT: CHARLIE HATCH (PA) (610) 975-4120

USE OF INSECT REPELLENTS FOR DISPERSING DEFENDING HONEY BEES (HYMENOPTERA: APIDAE)

(Collins, A.M., W.L. Rubink, J.I.C. Aguilar, and R.L. Hellmich II. 1996. *J. Econ. Entomol.* 89(3):608-613)

"Abstract - Some ecotypes of the honey bee, *Apis mellifera* L., show excessive levels of colony defense that have occasionally resulted in human and animal deaths. In cases where death has occurred, the victim, animal or human, has often been confined or panicked into an area from which it cannot escape. Our study was done to evaluate the use of repellents to reduce the severity of the stinging during accidental disturbances of excessively defensive colonies. Three mosquito repellents (diethyl-meta-toluamide, 2-ethyl-1,3-hexandiol, and dimethyl phthalate) and 2 odiferous compounds known to be repellent to honey bees (benzaldehyde and menthol) were tested in European (Texas)

and Africanized (Mexico) apiaries by victims in protective clothing. When sprayed as an aerosol at the defending worker bees, all the compounds significantly reduced the number of bees around the victim and the number of stings in a patch of suede exposed during the test. DEET was consistently the most effective repellent. A number of materials could be developed as repellents for emergency use by individuals that are at high risk of encountering wild honey bee colonies in the course of their daily activity."

NAPIAP UNVEILED

Presented here is a complete list of studies supported by the Forest Service's 1996 National Agricultural Pesticide Impact Assessment Program (FS-NAPIAP). This list displays the supporting Forest Service unit, study title and the principal investigator to contact for further information.

FS-NAPIAP is administered by the Forest Health Technology Enterprise Team (FHTET) Morgantown, WV, for Washington Office Forest Health Protection (WO-FHP). FS-NAPIAP supports studies designed to fill data gaps and other critical missing information about the effects of using registered pesticides in forest and range management programs. It is part of an interagency USDA-NAPIAP effort.

Regions, Stations, and the Northeastern Area submitted 24 new proposals for NAPIAP funding. A multidisciplinary review team evaluated all proposals, and funds were awarded to fourteen new proposals as well as six continuing studies selected in previous years. A call for proposals for Fiscal Year 1997 will be sent to Forest Service offices in August 1996.

In future issues of Timely Tips and other means of communication, FHTET-Morgantown will reveal more about FS-NAPIAP and the accomplishments of Forest Service units and their cooperators in this program. For program information -

CONTACT: ALLAN BULLARD (WV) (304) 285-1562
GARY K. SMITH (OR) (503) 326-6214

USDA-FS FY 96 NAPIAP PROGRAM PROJECT LIST

Proposal ID# *Title/Investigator*

FPL-34 Evaluation of Wood Preservative Efficacy, Leaching and Biological Impact in a Wetland Environment

Stan Lebow, USDA-FS, Forest Products Lab, (608) 231-9200

<i>Proposal ID#</i>	<i>Title/Investigator</i>
INT-23*	Management Unit Scale Plant Community Restoration Peter Rice, Univer. of Montana, (406) 243-2671
INT-24	Use of Tebuthiuron to Promote Diversity in...Big Sagebrush E. Durant McArthur, USDA-FS Intermountain Exp. Station (801) 342-5140
NA-44*	Influence of Sediment on Dimilin Toxicity and Dimilin-Induced Deformities in the Blue Crab Steven Rebach, Univ. of Maryland, Eastern Shore (410) 651-6014
NA-47	Comparative Effects of Btk Application on Two Strains of a Gypsy Moth Parasitoid Ken Raffa, Univ. of Wisconsin (608) 262-1125
NA-52	Accumulation, Persistence, and Effects of Triclopyr in Aquatic Substrates James Garrett, Lake Superior State Univ. (705) 759-5740
NC-28*	Refinement of Dazomet Application for Effective Control of Root Rot in Bareroot Forest Nurseries Jennifer Juzwick, USDA-FS, No. Central Exp. Station (612) 649-5111
PSW-31	Effect of Soil- and Foliar-Active Herbicides on Bearclover and Response of Ponderosa Pine Seedlings Philip McDonald, USDA-FS, Pacific SW Exp. Station (916) 246-5347
SO-36	...Factors that May Affect the Efficacy of Soil Fumigation with Dazomet in... Nurseries Stephen Fraedrich, USDA-FS, Southern Exp. Station (706) 546-2455
SO-37	Herbicide Screening Trials on Exotic Plants Invading Southeastern Forests James Miller, USDA-FS, Southern Exp. Station (203) 334-4518

<i>Proposal ID#</i>	<i>Title/Investigator</i>
SO-38	Reducing Movement of Imazapyr to Streams and Impacts on Aquatic Diversity with Different SMZ Widths Jerry Michael, USDA-FS, Southern Exp. Station (334) 826-8700
SO-39	Hexazinone, Imazapyr, and Triclopyr Runoff and Subsurface Flow Through a 35-foot Buffer Zone Jerry Michael, USDA-FS, Southern Exp. Station (334) 826-8700
R6-8*	Effectiveness of Less-Toxic Controls of Pest Organisms for Logs to be Imported to the U.S. Bob Gara, Univ. of Washington (206) 543-2788
R6-13*	Monitoring Long-Term Effects on Non-Target Vertebrates Following a Strychnine Application to Control Pocket Gopher Dale Nolte, USDA-APHIS-ADC Research, Olympia Lab (360) 664-3441
R6-14	Monitoring...Long-Term Effects on Weasels of Strychnine Baiting to Reduce Pocket Gophers Dale Nolte, USDA-APHIS-ADC Research, Olympia Lab (360) 664-3441
R6-15	Effects of Seasonal Picloram Application...on Plant Diversity Richard Everett, USDA-FS, Pacific NW Exp. Station (509) 662-4315
R6-16	Monitoring...Aluminum Phosphide Application to Reduce Pocket Gophers to Assess Non-Target Effects and Treatment Efficacy Dale Nolte, USDA-APHIS-ADC Research, Olympia Lab (360) 664-3441
R8-28*	Field Terrestrial Dissipation Study of Imidacloprid in the Georgia Coastal Plain Parshall Bush, Univ. of Georgia (706) 542-9023
R8-31	Dissipation of Arsenal and Oust in the Georgia Coastal Plain Parshall Bush, Univ. of Georgia (706) 542-9023

*Continuing studies from previous fiscal years.

EPA ISSUES FINAL GUIDANCE FOR SPECIAL LOCAL NEED (24(c))

(From *The Georgia Pest Management Newsletter*, April 22, 1996, Vol. 18(4), University of Georgia, Cooperative Extension Service)

"The EPA has issued final guidance for Special Local Need (24(c)) registrations that should make it easier for states to register pesticide to fill local needs. Under the new guidance, states can register a pesticide for any use if they meet the following conditions. 1) There must be an imminent pest problem for which there is no federally registered pesticide available. 2) The pesticide use must be covered by the proper tolerance. 3) The use of the pesticide must not have been denied, disapproved, or suspended by EPA. The EPA will guard against registrants avoiding federal registration through the use of 24(c). If the same 24(c) is issued in 15 states, additional requests will be denied, and EPA will contact the registrant."

For a copy of the guidance document or if you have questions -

CONTACT: EPA (VA) - (copies)	(703) 305-5017
(questions)	(703) 305-6250

PESTICIDE PUBLICATIONS AVAILABLE ON THE INTERNET

A number of new pesticide publications are free for the cost of shipping and handling if you contact Dr. Fred Whitford. Subjects include container management, food safety, label information, certification, storage, spill management, etc. (whitford@btny.purdue.edu).

UPCOMING EVENTS

13-18 July 1996. International Summer Meeting American Society of Agricultural Engineers (ASAE), Phoenix, AZ. Contact ASAE (616) 429-0300.

16 July 1996. Symposium - Decision Support Systems: Cost/Benefit/Environmental Approaches to Pest Management. Phoenix, AZ. Contact Jack Barry (916) 757-8342. This will be a session of the American Society of Agricultural Engineers (ASAE) meeting.

17-18 July 1996. National Spray Model and Application Technology Steering Committee Meeting, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

18-23 August 1996. Joint IUFRO Conference on Population Dynamics, Impacts, and Integrated Pest Management of Forest Defoliating Insects, Banska Stiavnica, Slovak Republic. Contact: Mike McManus (203) 230-4321, Fax (203) 230-4315; or Sandy Liebhold (305) 285-1609, Fax (305) 285-1505.

8-13 September 1996. **The Environmental Impact of Forestry Practices Course**, Sault Ste. Marie, Ontario, Canada. Contact: Eileen Harvey (705) 942-5824.

9-11 September 1996. **Conference on Technology Transfer in Biological Control - From Research to Practice**, Montpellier, France. For additional information contact J.P. Aeschlimann or M. Puygrenier, CSIRO Biological Control Unit, Campus de Baillarguet, fax (33) 67 59 90 40 or aeschlim@cypres.montpellier.inra.fr.

28 September - 4 October 1996. **Integrated Forest Vegetation Management Course** (formerly the Advanced Forest Herbicides Course), Fredericton, New Brunswick, Canada. Contact: Eileen Harvey (705) 942-5824.

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Karsky, R. 1996. Steam treating soils - An alternative to methyl bromide fumigation. 9624-2818-MTDC. USDA Forest Service, Technology and Development Center, Missoula, MT.

MacNichol, A.Z. 1996. FSCBG model comparisons with the 1992 Charter orchard peach twig borer study - Spray deposition and drift. FHTET 96-11. USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

For a copy of these publication(s) -

CONTACT: PAT SKYLER (CA) (916) 757-8343

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send articles in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA) (916) 757-8343
FAX (916) 757-8383
DG: P.SKYLER:R05H
/s=p.skyler/ou1=r05h@mhs-fswa.attmail.com

(Editor's Notes: We have summarized comments received in response to the recent reader survey. A copy of the summary is available upon request. Based on the many favorable comments received, FHTET plans to continue this publication. In addition, at least for the present time, the name will continue as Short Subjects and Timely Tips for Pesticide Users.

For those of you who would like to receive SS&TT via E-Mail, please fax your name and E-Mail address to me at (916) 757-8383.)

CONTACT: PAT SKYLER (CA)

(916) 757-8343

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team sponsors, compiles, edits, and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

SHORT SUBJECTS
AND TIMELY TIPS
FOR PESTICIDE USERS

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THE PUBLIC AND PESTICIDES: EXPLORING THE INTERFACE

Dr. Charles Curtis
Ohio State University

"NAPIAP funded this project in 1992 in response to recommendations from two evaluations (1987 and 1992) of our program suggesting that NAPIAP should address public perceptions of pesticides. The reasoning behind this was that many pesticide regulatory issues arise through concerns of a public not well informed in this area. As a result, regulatory actions may not focus on scientifically documented priorities. This is a rather difficult subject area to tackle, and Dr. Curtis has used a number of approaches.

This is an exploratory document examining societal communication issues related to pesticides and modern public policy decisions. The issues concerning pesticides, either pro or con, are not covered. The findings suggest the need for a different level and method of public dialogue from that currently used. One of the things that impresses me about this publication is the user friendly format. A reader may thumb through and easily pick out areas of interest." – Nancy N. Ragsdale, NAPIAP Director. (In Department of Agriculture memorandum dated January 22, 1996).

For a copy of the publication -

CONTACT: CRAIG OSTEEN (USDA)

costeen@reeusda.gov

NAPIAP PROGRAM MANAGER NAMED

Allan Bullard, Director, Forest Health Technology Enterprise Team- (FHTET) Morgantown announced that Gary K. Smith, Pacific Northwest Region (PNW), will serve part-time as national NAPIAP (National Agricultural Pesticide Impact Assessment Program) manager. NAPIAP-Forest Service sponsors over \$700,000 in pesticide effects research annually, emphasizing studies to fill data gaps for forestry uses. Under FHTET-Morgantown direction, Gary will coordinate NAPIAP program activities and serve as a contact. He will also work with Allan, FHTET staff, and NAPIAP participants and users to develop a strategic plan to transition NAPIAP to FHTET and strengthen customer service. Gary has served as PNW Region integrated pest management specialist since 1989, following 13 years of resource management on western national forests. He has an M.S. degree in forestry and started his career surveying for Dutch elm disease and oak wilt in the wilderness of the Cook County (Chicago, IL) Forest Preserve District.

CONTACT: GARY SMITH (OR)

(503) 326-6214

NIOSH CHANGES RESPIRATOR REQUIREMENTS
Advice for pesticides remains: Follow the label

(From *Crop Protection Manager*, March 1996)

“Regulatory changes will make buying dust masks and dual-cartridge respirators a bit more complicated over the next few years.”

“Headed for extinction are respirator cartridges designated for pesticide handling and paint spraying. For most pesticide uses, an organic vapor cartridge will replace the pesticide/paint cartridge.

But there are exceptions. In fact, one reason for the change is that modern crop chemicals no longer fit the categories for which the old certification process was designed. A pesticide respirator doesn't necessarily protect against all pesticides. You need to look at the materials safety data sheets, according to the National Institute for Occupational Safety and Health (NIOSH).”

“NIOSH announced last June that it will phase in new respirator testing and certification, replacing some tests that were nearly 60 years old. The agency began by revising standards for particulate filters. Many pesticide labels already require a specific type of respirator, such as an organic vapor cartridge, rather than relying on the outdated pesticide/paint category. Pesticide cartridges actually consisted of an organic vapor cartridge with a dust/mist prefilter, notes Judy Smith of the EPA Office of Occupational Safety. Those items will remain available.”

“More information on respirators can be obtained from manufacturers, retailers, ag supply houses and the EPA.”

For a complete copy of the article -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

CIBA, SANDOZ MERGE TO FORM GIANT NOVARTIS

(From *Utah Pesticide and Toxic News*, Vol. XIV, No. 4, April 1996, Utah State University Extension)

“Consolidation of the global pharmaceutical industry continued with announcement of one of the largest mergers in corporate history. Swiss drug firms Ciba-Geigy and Sandoz will form a new company, Novartis, that they say will be the second largest drugmaker in the world. It will have 4.4% of the global market, behind only Glaxo-Wellcome's 4.7%. The merger of Ciba and Sandoz, which had combined sales of nearly \$30 billion last year, will become effective upon shareholder

approval. Nutrition products include health foods, medical nutritionals, and the Gerber line of foods, which Sandoz acquired in August 1994. In agri-business, Novartis will play a major global role in agrochemicals for weed, disease, and insect control; in seeds; and in animal health. (C&EN, 3/11/96)"

(Ed. note: Sandoz produces *Bacillus thuringiensis* for forestry use labeled as Thuricide.)

PLANT GENOME PROGRAM

(From *Utah Pesticide and Toxic News*, Vol. XIV, No. 4, April 1996, Utah State University Extension)

"The purpose of the plant genome program is to enhance the competitiveness of U.S. crop production. One major goal is to improve the genetic makeup of important plant species. Agricultural changes, made mostly by conventional breeding, are relatively slow - hence the expression 'evolutionary, not revolutionary.' The plant genome program hopes to improve this picture of plant breeding. As an example, using genetic maps produced by the program, scientists were able to transfer into wheat genes for resistance to bacterial speck disease. This saved years of traditional breeding efforts.

As of midsummer of 1995, there were seven genetically engineered crops sold in the U.S.: canola, corn, cotton, potato, soybean, squash, and tomato. This list has increased since then and will continue to grow. Among the traits for which plants have been genetically engineered are oil composition, resistance to insects, herbicides, viruses, and delayed ripening. The USDA set up 13 databases for the plant genome project, based on major crops or crop groups. More information can be obtained from the USDA website: <http://probe.nalusda.gov>. (BN, 1/11/96)"

BIOCONTROL MANUAL AVAILABLE

The biological control of exotic plant species is a burgeoning area of investigation and research. A new reference publication and field guide provides scientists and land managers the most up-to-date information on the biological control agents available for exotic rangeland weeds. *Biological Control of Weeds in the West* is published in a looseleaf binder with a page for each of 30 weeds and 90 biocontrol agents and thoroughly illustrated with color photographs on 80 pound enamel paper. Updated pages of weeds and insects can be incorporated into the manual as they become available. This reference guide is available for \$20.00 plus \$5.00 S&H from Western Society of Weed Science, P.O. Box 10342, Helena, MT 59604. For further information -

CONTACT: NORM REES (MT)	(406) 994-6405
BARBRA MULLIN (MT)	(406) 444-3410
ED MONNIG (MT)	(406) 329-3134

THREE NEW PESTICIDE PUBLICATIONS AVAILABLE

Three new pesticide related publications produced by the Wisconsin Department of Natural Resources and Michigan State University are currently available through Michigan State University (MSU) Extension. The authors are Roseann Kachadoorian and Jane Cummings-Carlson of the Wisconsin DNR; and Deborah McCullough and Doug Lantagne of MSU. Funding to develop the bulletins was provided in part by a Focus Fund grant from the Forest Service, NA State & Private Forestry. The three publications are:

Pesticides for Use in Forest and Seed Tree Orchards in the North Central Region, Extension Bulletin E-2592, December 1995, 38 pp. (\$2.00)

Pesticides for Use in Conifer Nursery Production in the North Central Region, Extension Bulletin E-2593, December 1995, 41 pp. (\$2.00)

Pesticides for Use in Christmas Tree Production in the North Central Region, Extension Bulletin E-2594, 52 pp. (\$2.50)

To obtain copies contact:

Bulletin Office
10B Agricultural Hall
Michigan State University
East Lansing, MI 48824-1039
(517) 355-0240

For additional information -

CONTACT: STEVE KATOVICH (MN) (612) 649-5264

EVALUATION OF REGION 6 WESTERN SPRUCE BUDWORM CONTROL PROJECT

(Sheehan, Katharine A. 1996. General Technical Report PNW-GTR-367, USDA Forest Service, Pacific Northwest Research Station. 55 pp.)

Effects of insecticide treatments conducted in Oregon and Washington from 1982 through 1992 on subsequent defoliation by western spruce budworm (*Choristoneura occidentalis* Freeman) were evaluated by using aerial sketchmaps and a geographic information system. For each treatment, the extent and severity of defoliation was calculated for the treated area and a set of four nested rings surrounding the treated area (0-0.5 mile, 0.5-1 mile, 1-2 miles, and 2-4 miles) for up to 8

years: 3 years prior to treatment, the year of treatment, and 4 years following treatment. Insecticide treatments applied in 1982 and 1983 coincided with reduced percentages of defoliation by western spruce budworm during the year following treatment. However, defoliation extent usually returned to pretreatment levels by the second year, and defoliation severity in treated and adjacent untreated areas was nearly identical following treatment. For the period from 1985 through 1992, there generally were little or no detectable differences between treated and adjacent untreated areas in either extent or severity of defoliation.

(From p. 12 of the report: "Four explanations could account for similar defoliation patterns in both treated areas and surrounding rings for projects conducted from 1985 through 1992: (1) aerial sketchmaps may not detect real differences in defoliation extent or severity between treated and untreated areas, (2) treatments may have caused effects in all four surrounding rings that were similar to effects caused within the treated area, (3) treatments may have removed major sources of budworm female moths that had been sustaining defoliation in both treated areas and the surrounding rings, or (4) treatments may have had no net detectable effect on subsequent defoliation within treated areas."

For a copy of the report -

CONTACT: KATHERINE SHEEHAN (OR)

(503) 326-6217

FAX (503)326-2469

FACTS ABOUT LYME DISEASE IN CALIFORNIA

Topics covered in this 4 page publication include: What to do if you think you have lyme disease, Lyme disease symptoms, The vector of lyme disease in California, Tick avoidance, Removal of attached ticks. Published by the State of California, Department of Health Services, Vector Surveillance and Control Branch, you can contact them for additional information at (415) 540-2566/2356.

For a copy of the brochure -

CONTACT: JOHN BORRECCO (CA)
PAT SKYLER (CA)

(415) 705-2873

(916) 757-8343

TICK ATTACK KIT

A company called Mind Mechanics, Inc. offers the "Tick Attack Kit" which consists of a credit card style first aid kit for tick bites that can be carried along with you at all times. The kit consists of a credit card size case, tick identification aid, tweezers, magnifier, specimen storage well, topical antiseptic, adhesive bandage, tick log and instructions for use. The kit is available for \$9.95 + S&H from Mind Mechanics, Inc., P.O. Box 487, Red Bank, NJ 07701, 1-800-MINI-KIT.

1997 WESTERN FOREST INSECT WORK CONFERENCE

The 1997 Western Forest Insect Work Conference will be held in Prince George, British Columbia during the week of April 14-18, 1997. The conference will be held at the Inn of the North, Prince George. Conference workshops and panels will be held on Tuesday to Thursday of that week - there may also be a separate symposium on biodiversity held in Prince George on the Thursday and/or Friday and/or Saturday of that week. Information on the symposium, if it proceeds, will be included in information packages for the Insect Work Conference, but the symposium is not officially associated with the work conference. A tentative program is expected to be ready for mailing by late summer or early fall of this year. A second mailing can be expected in December or so and the final mailing and registration information should be sent by the end of January of 1997.

CONTACT: PETER M. HALL (BC, CANADA)

(604) 387-8742

FAX (604) 387-1467

25% PER YEAR BIOPESTICIDE GROWTH PROJECTED

(From *The Agra Quester*, Issue #12, May 1996))

“Chemical & Engineering News (April 29, 1996) reports that the market for biopesticides will grow at 25% per year, according to a March study by the Freedonia Group. Annual biopesticide growth from 1985-1995 averaged 20%. This growth is largely at the expense of chemical pesticides, which are predicted to barely keep up with inflation. Of all pesticides, the most growth is expected in fungicides, followed by insecticides. Chemical herbicide markets are relatively flat, with most segments saturated.”

CONTACT: AGRAQUEST, INC. (CA)

(916) 750-0150

MONSANTO OFFERS \$100,000 AWARD FOR SUSTAINABLE DEVELOPMENT TECHNOLOGIES

Monsanto is offering a \$100,000 incentive to accelerate the progress of new technologies and systems to improve world environmental and economic sustainability. The John Franz Sustainability Award will be given to the individual or team who submits the most promising project. John Franz is the inventor of Roundup herbicide, which contributes to agricultural sustainability around the world. Entries must address one or more of these areas:

Conservation – Unique practices that contribute to conservation of natural resources.

Technology – Innovative initiatives in processes, equipment, practices or strategies involving infrastructure, development, and access to credit that allow people to be self-sufficient.

Education – Programs that train people to acquire and apply information that will improve the quality of their lives, use renewable resources sustainably, substitute renewable resources for new ones, and dramatically reduce waste production.

The deadline for entries is June 1, 1996. (ECOLOG-L Digest - 6-7 April '96)

For more information or to request an application form -

CONTACT: DIANE HERNDON (MO) (314) 694-2915
jfaward@Monsanto.com

STARCH: A RENEWABLE TREATMENT FOR PESTICIDE CLOTHING

(From *Utah Pesticide and Toxic News*, Vol. XIV. No. 4, April 1996, Utah State University Extension)

“Ordinary laundry starch has been found to protect pesticide applicators from harmful chemicals. Starch binds with chemical pesticides and keeps them away from the skin until the clothing can be washed. Additionally, the starch-bound chemicals are easily washed from the clothing. Cotton or cotton-polyester garments which have been starched provide a durable finish that traps pesticides, prevents their transfer to skin, and allows moisture vapor to be transported away from the skin. Proper pesticide clothing should always be worn when applying pesticides, and clothing used during pesticide application should be washed separately from all other clothing. (BB, 2/96)”

CONTACT: HOWARD DEER (UT) (801) 797-1600

LOW RISK SUBSTANCES EXEMPTED FROM PESTICIDE REGULATION

(From *Utah Pesticide and Toxic News*, Vol. XIV, No. 4, April 1996)

“EPA has exempted from federal pesticide regulation certain low-risk substances that are used as pesticides. The agency says it has determined that the substances, many of which are common food ingredients, pose little or no risk to public health or the environment. Substances exempted by the final rule include **castor oil, cedar oil, cinnamon, citric acid, citronella, cloves, corn oil, dried blood, garlic, lauryl sulfate, lemon grass oil, putrescent whole egg solids, sodium chloride, thyme, white pepper, and zinc metal strips**. To qualify for exempted status, pesticide products may contain only active ingredients that have been specifically exempted

by EPA and only those inert ingredients that have been identified by EPA as 'minimum risk.' Labels on these products must comply with established regulations regarding false and misleading statements and cannot claim that the pesticide will control microorganisms that pose a threat to human health. This rule is a response to President Clinton's request that agencies reduce regulatory burdens and costs. (C&EN, 3/18/96)"

DIRECTORY - SUPPLIERS OF BENEFICIAL ORGANISMS IN NORTH AMERICA

This free directory provides a listing of suppliers in the US, Canada and Mexico and contains an index which helps locate suppliers of a particular organism. For each supplier, address, phone number and ordering information is listed. Information on the supplier's catalogues, brochures and the type of organism is also included.

To order a copy -

CONTACT: CALIFORNIA EPA

DEPARTMENT OF PESTICIDE REGULATION

(916) 324-4100

WEED DATABASE COMPACT DISK by Judy Hume

(From *Pest Management News*, Vol. 8, No. 1, Spring 1996)

"WeedTriev database is now accessible directly by weed researchers. This database contains the technical reports submitted by industry, government, and university researchers that comprise the annual Weed Research Reports from 1976 to 1995 in western Canada and from 1990 to 1995 in eastern Canada. Researchers, regulators, and extension personnel now have the capability to quickly retrieve data to compare weed management strategies, correlate environmental variables with treatment efficacy, etc.

Funded by several industry partners and Agriculture and Agri-Food Canada, WeedTriev was developed by Dataware Technologies with CD Answer as the base software. This custom application runs in a 'Windows' environment for use on IBM-compatible personal computers and can export data to spreadsheets to allow custom presentation and analysis of the data."

For additional information -

CONTACT: JUDY HUME (SK, CANADA)

(306) 956-7299
humej@em.agr.ca

MATERIALS AND SUPPLIES FOR MANAGEMENT OF WILDLIFE DAMAGE TO TREES

(From *Technology and Development News*, Forest Service Technology & Development Program, March-April 1996)

"Dr. Dale Nolte and Ivy Otto discuss ways of controlling wildlife damage in *Materials and Supplies for Management of Wildlife Damage to Trees*, MTDC 9624-2808. There are tips for identifying problems caused by mountain beavers, beavers, elk, porcupines, snowshoe hares, voles, deer, pocket gophers, and black bears. There is information on physical deterrents such as traps, toxicants, repellents, alternative forages, and devices to frighten wildlife. They have also listed the names, addresses, and phone numbers of more than 200 companies that supply materials for controlling wildlife damage."

For a copy of the report -

CONTACT: BEN LOWMAN (MT) (406) 329-3958
FAX (406) 329-3719

REFERENCE BOOK GUIDES AG CHEMICAL USERS TO PRODUCTS

(From *Crop Protection Manager*, Vol. 9, No. 3, May 1996)

"**The User's Reference Guide to Pesticides** from Thomson Publications lists agricultural chemical products by active ingredient and brand name. The book provides information on formulations, tankmixes, adjuvant recommendations and the compatibilities of pesticides used in the United States.

The book lists agricultural pesticides by chemical name, followed by specific recommendations for trade name products. The book is designed primarily for those who use or recommend pesticides on a day to day basis."

Cost is \$27.95 + \$2.50 S&H for each book ordered -

CONTACT: THOMSON PUBLICATIONS (CA) (209) 435-2163

COMPANION SOFTWARE TO CHEMICAL HANDBOOK NOW AVAILABLE

(From *Crop Protection Manager*, Vol. 9, No. 3, May 1996)

"Designed as companion software to the **Farm Chemicals Handbook**, the **Electronic Pesticide Dictionary** allows growers to use the power of computer searching to find detailed information on agricultural chemicals. The program provides data on thousands of current and discontinued products, plus definitions of key terms and abbreviations.

The entire text is indexed for fast retrieval and combination searches. Search results can be viewed on screen, printed, exported to a word processor or copied and pasted into any Windows application.

The Electronic Pesticide Dictionary contains information from the Farm Chemicals Handbook—the full text of the Pesticide Dictionary and the Biocontrols Dictionary, summaries and contact information for key environmental laws, EPA regional office addresses and phone numbers, state control officials and pesticide coordinators, company contact information and more.”

Cost of the software and manual together is \$183.95 + \$7.00 S&H or they can be ordered separately - \$129.95 + \$7.00 S&H for the software, \$84.00 + \$7.00 S&H for the manual.

CONTACT: MEISTER PUBLISHING

(800) 572-7740

UPDATED SOFTWARE HELPS SELECT HERBICIDES

(From *Crop Protection Manager*, Vol. 9, No. 3, May 1996)

“The computer software program **Herbicide Selection Guide** version 5.2, a joint project between North Dakota State University Extension Service and Whetstone software, is designed to help growers or applicators compare unbiased information about various herbicides and tankmixes.

The program determines cost per acre, rates product performance and provides information on herbicide rates, application timing and method, weeds, water, mixing order, seed variety, storage temperature and other topics.”

“...the Herbicide Selection Guide uses information from the [North Dakota State University] extension service, major chemical companies and university researchers.”

Cost of the Herbicide Selection Guide is \$65.00 + S&H.

CONTACT: WHETSTONE SOFTWARE

(800) 748-2541

GUIDE LISTS SPRAY ADJUVANTS

A Guide to Agricultural Spray Adjuvants Used in the United States is a comprehensive reference to adjuvants. It lists adjuvants according to function, with sections on spreaders, stickers, buffers and foliar nutrients; penetrants, crop oil concentrates and extenders; drift control agents, deposition and retention agents; defoamers; foam markers and dyes; soil wetting agents and soil conditioners; compatibility agents and other miscellaneous agents.

Cost of the guide is \$17.50 + \$2.50 S&H for each book ordered.

CONTACT: THOMSON PUBLICATIONS (CA)

(209) 435-2163

SPRAYING GUIDE HIGHLIGHTS ADJUVANT USE

(From *Crop Protection Manager*, Vol. 9, No. 3, May 1996)

“Growers can find useful information for selecting and using adjuvants in the booklet **The ABCs of Spraying.**”

“This booklet describes the various types of adjuvants and their uses, including wetting and spreading products (surfactants), penetrating agents, drift reduction products, deposition and retention agents, compatibility enhancers, antifoaming products, suspension and resuspension agents and other types of adjuvants. Uses, rates, active ingredients and other information is outlined for more than 35 products.

The 58-page booklet also includes sections on adjuvant functionality and effect, surfactant properties and behavior, and additional sources of information. Charts on nozzle output, aircraft calibration and conversions are also featured.”

For a free copy of the booklet and/or more information -

CONTACT: LOVELAND INDUSTRIES (CO)

(800) 356-8920

A COMPENDIUM OF HERBICIDE ADJUVANTS

(From *Conservation Technology Information Center (CTIC) Partners*, February/March 1996, Vol. 13, No. 2.)

“This 48-page, third edition organizes the many adjuvants currently on the market [and] includes 330 entries from 33 companies.” Individual copies are \$2.00 or \$1.50 per copy when ordering two or more. Make checks payable to SIUC Belleville Research Center. To order, write: George Kapusta, Southern Illinois University, Depart. of Plant and Soil Science, Carbondale, IL 62901-4415. For more information, phone: (618) 453-2496.”

NEW TRAINING VIDEOS AVAILABLE

Handcan/Backpack Sprayer Calibration and Use (41 min.)

Applicator Safety Training (17 min.)

How to Use a Respirator and Setting up a Respirator Protection Program (48 min.)

The Safe Handling of Pesticides (21 min.)
How to Use and Calibrate a Rotary Spreader (33 min.)
Understanding the Pesticide Label (49 min.)
The Fundamentals of Tree/Shrub Spraying and Soil Injection (58 min.)
Pesticide Calculations and Useful Formulae (24 min.)
Pesticide Calculations and Useful Formulae - Part 2 (40 min.)
A Practical Guide to Rodent Control - Ground Squirrels (48 min.)
A Practical Guide to Rodent Control - Pocket Gophers (40 min.)
Understanding a Material Safety Data Sheet (38 min.)
How to Calibrate and Operate a Boom Sprayer (55 min.)
How to Control and Clean Up a Pesticide Spill (56 min.)
The In's and Out's of Safety Equipment (45 min.)
Fertilizer Calculations and Useful Formulae (45 min.)

The videos are produced by M.L.G. Productions, are in VHS format, and are available for \$24.95 each + S&H from Thomson Publications, P.O. Box 9335, Fresno, CA 93791, (209) 435-2163, FAX (209) 435-8319.

UPCOMING EVENTS

20-24 May 1996. **Training course sponsored by The Fish and Wildlife Service *Pesticide Effects to Fish and Wildlife Resources***, to be held at the University of Wisconsin, School of Veterinary Medicine, Madison, WI. Registration deadline is February 1, 1996. Contact Dave Thomas at (202) 205-0889 for additional information.

30-31 May 1996. **Workshop on Alternatives to Methyl Bromide**, Toronto, Ontario, Canada. For additional information contact Lise Gendrom, Technical Seminar Coordinator, Environment Canada, (819) 953-9368, Fax (819) 953-7253.

9-11 July 1996. **National Steering Committee for Management of Seed, Cone and Regeneration Insects**, Bend, OR. Contact: Roger Sandquist at (503) 326-6222.

13-18 July 1996. **International Summer Meeting American Society of Agricultural Engineers (ASAE)**, Phoenix, AZ. Contact ASAE (616) 429-0300.

16 July 1996. **Symposium - Decision Support Systems: Cost/Benefit/Environmental Approaches to Pest Management**. Phoenix, AZ. Contact Jack Barry (916) 757-8342. This will be a session of the American Society of Agricultural Engineers (ASAE) meeting.

17-18 July 1996. **National Spray Model and Application Technology Steering Committee Meeting**, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

18-23 August 1996. **Joint IUFRO Conference on Population Dynamics, Impacts, and Integrated Pest Management of Forest Defoliating Insects**, Banska Stiavnica, Slovak Republic. Contact: Mike McManus (203) 230-4321, Fax (203) 230-4315; or Sandy Liebhold (305) 285-1609, Fax (305) 285-1505.

9-11 September 1996. **Conference on Technology Transfer in Biological Control - From Research to Practice**, Montpellier, France. For additional information contact J.P. Aeschlimann or M. Puygrenier, CSIRO Biological Control Unit, Campus de Baillarguet, fax (33) 67 59 90 40 or aeschlim@cypres.montpellier.inra.fr.

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Barry, J.W. 1996. USDA Forest Service - Approaches to application technology. Presented at *symposium: direct control of adult mosquitoes/state-of-the-art technologies, national mosquito control association annual meeting*. Norfolk, VA.

Barry, J.W. 1996. Seventh Report - National steering committee for management of seed, cone, and regeneration insects. FHTET 96-07. USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

Baxter, G. 1996. Improving rangeland health by thinning dense sagebrush stands with tebuthiuron (Spike 20P). Presented at the *big game - livestock symposium (sharing common ground)*, Sparks, NV and at the *Idaho weed control association*, Boise, ID.

Herzberg, D. 1995. Single tree spray systems: Progress report. MTDC 9534-2850. USDA Forest Service, Missoula Technology and Development Center, Missoula, MT.

Thistle, H. 1996. Differential GPS aircraft navigation, resource inventory, and positioning demonstration, Missoula, Montana-October 1995. In *Forest Pest Management Tech Tips*, 9634-2324-MTDC, May.

For a copy of these publications -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send articles in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA) (916) 757-8343
FAX (916) 757-8383.
DG: P.SKYLER:R05H
/s=p.skyler/ou1=r05h@mhs-fswa.attmail.com

Editor's note: Thanks to all of you who completed and returned the recent questionnaire. Your comments will be very helpful as we plan the future direction of Short Subjects and Timely Tips.

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team sponsors, compiles, edits, and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

SHORT SUBJECTS
AND TIMELY TIPS
FOR PESTICIDE USERS

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NIAID-SUPPORTED RESEARCHERS ISOLATE BACTERIUM THAT CAUSES POTENTIALLY DEADLY TICK-BORNE DISEASE

(From E-Mail Release dated 1/24/96 from Folkers@nih.gov)

"Researchers supported by the National Institute of Allergy and Infectious Diseases (NIAID) have successfully isolated the organism that causes human granulocytic ehrlichiosis (HGE), a newly recognized and sometimes fatal infection transmitted to people by ticks.

Jesse L. Goodman, M.D., of the University of Minnesota and his colleagues are the first researchers to grow the yet-unnamed bacterium in laboratory cell cultures, using blood from patients with HGE. They report their findings in the Jan. 25, 1996 issue of *The New England Journal of Medicine*.

'Little is known about the agent that causes HGE, because until recently we have been unable to grow this intracellular pathogen in the laboratory,' says Dr. Goodman. 'Now that this bacterium has been isolated from patients, we can develop improved diagnostic tools and treatments, as well as better understand the biology and epidemiology of this emerging infection.'"

"HGE appears to be transmitted by deer ticks, which also can transmit Lyme disease. It has been suggested that HGE may also be transmitted by dog ticks. Physicians have observed patients infected by two or more tick-borne infections at once, which can make diagnosis and treatment decisions difficult."

"Because of the rise in tick-borne infections, including Lyme disease, Rocky Mountain Spotted Fever and diseases due to *Ehrlichia* such as HGE, avoiding exposure to ticks is important. In an editorial in the same issue of *The New England Journal of Medicine*, William Schaffner, M.D., of Vanderbilt University, and Steven M. Standaert, M.D., of the Association pour l'Aide a la Medecine Preventive (France), write, 'The use of insect repellents reduces the risk of infection. Other precautions that discourage the attachment and feeding of ticks, such as the wearing of light-colored clothing, long pants and long-sleeved shirts, and thorough examination of the skin after walking in the woods or fields may also be helpful.'"

"The research by Dr. Goodman and colleagues is supported as part of NIAID's comprehensive research agenda to enhance the nation's ability to detect and control emerging microbes such as HGE."

For a complete copy of the Release -

CONTACT: TOM HOFACKER (DC)
PAT SKYLER (CA)

(202) 205-1106
(916) 757-8343

2,4-D UPDATE

(From *North American Applicator*, Vol. 10, No. 1, January/February 1996)

"2,4-D - Due to the cost of re-registration, the 2,4-D task force will support the usage on aquatics, corn, fallowland, farmyards, fence rows, forestry, grass (seed crop), pasture, rangeland, rice, rights of way, roadsides, sorghum, soybeans, small grains (wheat, barley, rye and oats), sugarcane and turf. The IR-4 Project will support the usage on apples, apricots, asparagus, blueberries, cherries, cranberries, filberts, peaches, pears, pecans, pistachios, plums, potatoes, strawberries, sweet corn and wild rice. The Citrus Quality Commission will support the usage on citrus as a growth regulator. Uses that will probably be dropped are: almonds, clover, cotton and walnuts."

AGRICULTURAL RESEARCH SERVICE (ARS) PESTICIDE DATABASE AVAILABLE ON THE INTERNET

The ARS Pesticide Database contains information on hundreds of pesticides used for controlling insect, weed, and fungal pests. For each pesticide, the database provides a description of up to 16 chemical, biological, and physical features that influence its breakdown rate and likelihood of entering surface or groundwater. The database can be accessed at <http://www.arsusda.gov/SRLHome.html>.

GYPSY MOTH NEWS ON THE INTERNET

Gypsy Moth News, a periodical produced by the USDA Forest Service, State and Private Forestry, is now available on the internet. This periodical covers a wide range of topics including outbreak updates, the latest control technologies, who's spraying what and how much, what's eating the gypsy moth, and who the experts are. You can find the Gypsy Moth News on the world wide web at: <http://gypsy.fsl.wvnet.edu/gmoth/gmnews/gmnews.html>. For more information -

CONTACT: DAN TWARDUS (WV)

(304) 285-1545

FIRE EFFECTS INFORMATION SYSTEM (FEIS)

FEIS provides summaries of technical fire effects on 900 plant species and 90 animal species. The FEIS knowledge database is on the Internet and can be accessed at <http://www/fs/fed.us/database/feis>.

(Note: For Forest Service DG users, the database can be accessed through Utilities, User Applications, Info_Center, FEIS.)

CONTACT: CAM JOHNSON (MT)
DENNIS SIMMERMAN (MT)
LUCY EWING (UT)

(406) 329-4810
(406) 329-4806
(801) 625-5687

**DR. NANCY RAPPAPORT, USDA FOREST SERVICE, FHP, ON DETAIL
WITH ENVIRONMENTAL PROTECTION AGENCY**

(Excerpt from Forest Service Memorandum, 3400, dated March 6, 1996, from Director, Forest Health Protection)

"In order to develop a better understanding of the registration process for biopesticides, FHP has arranged for Dr. Nancy Rappaport to spend 10 months on detail with the biopesticides and Pollution Prevention Division (BPPD) of EPA's Office of Pesticide Programs (OPP). Dr. Rappaport will be working primarily as a member of the regulatory team that processes registration of microbial and biochemical pesticides. She will also spend time with other OPP branches, including the Field Operations Division (which deals with worker safety issues), Environmental Fate and Effects, and Special Review and Reregistration.

In addition to the above activities, Nancy will prepare a draft proposal for the Forest Service's participation in EPA's Pesticide Environmental Stewardship Program (PESP)."

For additional information -

CONTACT: NANCY RAPPAPORT, EPA (DC) (703) 308-7035

FARMERS SPEND BILLIONS ON PESTICIDES EACH YEAR

(From *North American Applicator*, Vol. 20, No. 1, January/February '96)

"On an annual basis, U.S. farmers spend \$7.2 billion on pesticides in crop production. A recent study by a researcher at the National Center for Food and Agricultural Policy (NCFAP) delineates this expenditure by crop, pesticide, and chemical company. The study indicates that herbicides to kill weeds account for the greatest expenditure of \$4.7 billion a year, while insecticide expenditures total \$1.6 billion a year. The application of fungicides to control plant diseases costs \$600 million per year. A fourth category of pesticide use consists of products used as crop defoliants, growth regulators, and soil fumigants and accounts for \$300 million in expenditures per year. Nine of the top 10 selling pesticides in the U.S. are herbicides.

Eighteen companies account for 94% of the sales of pesticides to U.S. farmers. The top five companies have sales of \$700 million or more per year and collectively account for 57% of U.S. crop protection pesticide sales. Three crops (corn, soybeans and cotton) account for 60% of farmers' expenditures on pesticides in the U.S.

The NCFAP report estimates the national sales of 193 active ingredients used in U.S. crop production. The sales estimates are organized by crop and chemical producer. The report also contains profiles of the 18 companies with more than \$50 million in crop pesticide sales. These profiles include descriptions of the company's recent economic performance, as well as descriptions of new product introductions, price changes, and usage trends of the company's products.

The NCFAP report is an independent source of information concerning the U.S. crop protection industry. NCFAP researcher Leonard P. Gianessi calculated the national sales estimates based on recent estimates of usage and recent selling prices. The company profiles are compiled from 230 publicly-available references."

PEPPERMINT PEST MANAGEMENT

(From ASAE *Resource*, Vol. 3, No. 2, February 1996)

"Help is on the way for peppermint growers, who are challenged by a large array of arthropods – insects and other invertebrates.

Peppermint pest management has arrived in the computer age, says Ralph Berry, professor of entomology at Oregon State University (OSU). Researchers there have developed a computerized, interactive integrated pest management decision support system appropriately called Integrated Pest Management for Peppermint (IPMP). The system is designed to help Pacific Northwest peppermint growers, field representatives, agents and consultants make informed decisions to manage insect, mite and soil arthropod pests. The Pacific Northwest is targeted because that is where 89% of all peppermint for oil production in the United States is grown. IPMP includes research and extension articles; sampling methods with pesticide threshold calculators; identification keys for arthropods, based on damage; weather and economic information; and biological control information. All are integrated in an interactive windows-based system.

'This system is the accumulation of 25 years of peppermint management research in the Pacific Northwest,' Berry says. 'Sound management of mint requires the ability to forecast or predict pest timing and impact based on up-to-date weather and economic conditions. This software links information, much like the human brain would link it if it were referring to pest management in a book.'"

For more information -

CONTACT: INTEGRATED PLAN PROTECTION CENTER
OREGON STATE UNIVERSITY

(541) 737-3541

EPA: PESTICIDES REDUCED 25% BY 2005

(From *ASAE Resource*, Vol. 3, No. 2, February 1996)

"In a draft of 'Goal Report 2005,' the EPA predicts that by 2005, there will be a 25% reduction of illegal pesticide residues detected by FDA food-supply monitoring.

The draft also predicts a 'significant reduction' in the use of pesticides with the highest potential for carcinogenic effects, resulting in 'no instances, in either adults or children, where pesticide reference dose (RfD) is exceeded.'

The agency foresees that 90% of crop acreage and pesticide usage will be under integrated pest management systems, and that 'environmental releases of industrial chemicals having the greatest potential for food contamination will be reduced 50% for persistent bioaccumulative industrial chemicals and 90% for heavy metals.' In the draft's Safe Food 2005 chapter, the agency notes that, 'EPA will develop baseline data on aggregate exposure as a percentage of RfD. By 2005, new goals will be established for reducing the percentage of pesticides for which estimated exposures are greater than 75% of the RfD.'

Under costs and benefits, the chapter notes that 'it is not feasible to specifically estimate the costs associated with the target milestones in this report. Resources for many of the activities needed to achieve the milestones should be available by refocusing or reprogramming existing resources.'" (*Food Chemical News*, October 9, 1995).

FLEAS

(From *Pest Management Bulletin*, Vol. 17, No. 1, Dec. 1995)

"Several species of fleas may be pests, and five kinds have been found on a single animal. The cat flea is the most frequently found, although the dog, human, and sticktight fleas are also found. Fleas may attack a wide variety of warm-blooded animals including dogs, humans, chickens, rabbits, squirrels, rats and mice.

Biology - Fleas are small (1/16 in.), dark, reddish-brown, wingless, blood-sucking insects. Their bodies are laterally compressed, (i.e., flattened side to side) permitting easy movement through the hairs on the host's body. Their legs are long and well adapted for jumping. The flea body is hard, polished, and covered with many hairs and short spines directed backward. The mouthparts of an adult flea are adapted for sucking blood from a host.

The female flea lays her tiny, white eggs loosely on the hairs, in the feathers, or in the habitat of the host. The eggs readily fall off the host onto the ground, floors, bedding, or furniture. Some fleas can lay 500 eggs over a period of several months by laying batches of 3-18 eggs at a time. The tiny eggs hatch in 1-12 days after being deposited. The white, worm-like larva avoids light and feeds on particles of dead animal or vegetable matter generally present in cracks and crevices. Within 7-14 days, unless food has been scarce, the third larval stage is completed, and the larva spins a tiny cocoon and pupates. Usually after a week the adult flea emerges and begins its search for blood.

Fleas are known to remain in the pupal stage from 5 days to 5 weeks in the absence of hosts. Adults emerge from the pupal case when vibrations from pets or humans let them know a host is near. This is one reason why people returning to an unoccupied home may suddenly be attacked by an army of fleas."

"The entire life cycle of a flea requires from 2 weeks to 2 years. Hot, wet, summer months favor egg laying. Hot, dry periods give maximum adult production, so greatest adult flea populations are produced in August to September."

For a complete copy of the article -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

MIRACLE CROPS STILL YEARS AWAY

(From *ASAE Resource*, Vol. 3, No. 2, February 1996)

"New crops developed from native perennial legume plants could reduce herbicide use, soil erosion and energy costs. But be patient - it may take 20 years to develop such new plants, say University of Minnesota researchers.

Plant breeders Nancy Ehlke, David Somers and Donald Wyse are working on new crops that could be used for grain, forage or biomass production. They could also be used as cover crops to suppress weeds and add nitrogen.

The researchers are working with seven native legumes that have all survived at least one Midwest winter. One promising grain is the pale pea, although it has toxic amino acids that may need to be removed.

Perennial crops have the advantage of not requiring annual seedbed preparation, which takes energy and leaves bare soils exposed to erosion. Such productive legumes could also be ideal crops for marginal lands." (*Successful Farming*, November 1995)

SHORT SUBJECTS
AND TIMELY TIPS
FOR PESTICIDE USERS

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STATUS OF THE REREGISTRATION OF PESTICIDES

(From *Utah Pesticide and Toxic News*, Utah State University Extension, Vol. XIV, No. 1, January 1996)

“EPA’s congressionally mandated pesticide reregistration program currently is expected to reach completion by the year 2004. This comprehensive reevaluation of pesticide safety is required for those pesticide active ingredients initially registered before November 1, 1984. Presently, 121 of 405 REDs (Reregistration Eligibility Decision Documents) have been completed. Each RED summarizes one or more of the 590 active ingredients that are being reviewed. About 40 REDs are expected to be completed each year until the completion of the program. Thus far, only 46 of the 151 important food group REDs have been completed. Any potential losses to agriculture will be reported. For additional information contact: Mr. Ed Setren, EPA, Special Review and Reregistration Division, Phone 703-308-8166, E-mail setren.ed@epamail.epa.gov. (RNN, 12/21/95)”

POLL REVEALS CHANGING PESTICIDE PRACTICES

(From ASAE *Resource*, January 1996)

“A national Gallup poll reveals that farmers are changing the way they work with pest control products not only because they are concerned about safety and environmental issues, but also because it makes good business sense. Almost 60% of the farmers surveyed said they are doing things differently compared to three years ago, and they cite economics and personal responsibility as the main reasons.

According to the 1994 Sandoz National Environmental Poll, farmers are using safer pest control products, improving application methods and using less product. The poll surveyed more than 1,000 farmers nationwide.

According to the poll, 40% of the respondents said they are familiar with integrated pest management, and about half of those said they have used such a program. In addition, more than 80% said people in their industry always or sometimes wear protective clothing.

More than 50% of the farmers surveyed said people in their industry always or sometimes notify their neighbors when applying pest control products (a practice not always required by law), and more than 50% said it is a good idea.

Respondents also said that manufacturers, users/applicators and government, in that order, have responsibility for correcting problems associated with pest control products. (*Wheat Life*, October 1995)”

EPA BIOPESTICIDES AND POLLUTION PREVENTION DIVISION PERMANENT

(From *Utah Pesticide and Toxic News*, Utah State University Extension, Vol. XIII, No. 11, December 1995)

“EPA has announced that the pilot Biopesticides and Pollution Prevention Division has been given permanent status. Begun in the Agency’s Office of Pesticide Programs on a trial basis in November 1994, the division was given a number of key responsibilities: promoting pollution prevention; reducing pesticide use; increasing adaption of integrated pest management techniques; encouraging the development and use of safer pesticides; accelerating the registration of new biological pesticides; and managing the reregistration actions for all biological pesticides. Nineteen biological pesticides were registered by the division in its first year including several biochemical pesticides which have a non-toxic mode of action, a number of pheromones that can reduce the use of chemical insecticides, and some microbial pesticides to replace fungicides used in postharvest treatment of fruit to prevent spoilage in storage. The first genetically engineered plant pesticides were registered this year: the *Bacillus thuringiensis* (Bt) toxin produced in potatoes to control the Colorado potato beetle; Bt

in corn to control the European corn borer; and Bt in cotton to control the cotton bollworm. The new division is working closely with the USDA to explore alternatives to traditional pesticides in controlling pests and to promote a new Pesticide Environmental Stewardship Partnership program among pesticide users. (EPA, 10/16/95)"

BACTERIA MAY PREVENT CORROSION

(From ASAE *Resource*, January 1996)

"An estimated one-quarter of corrosion damage costs – equal to nearly 1% of the U.S. gross national product – might be prevented through the use of better protective techniques. Organic coatings, for example, can protect metallic surfaces against corrosion, but the cost of applying and maintaining them is often prohibitive.

Now, James Earthman and Thomas Wood at the University of California (UC) have proposed a novel, inexpensive approach to corrosion prevention: let bacteria create the protective coatings.

The irony in this suggestion is that scientists are just beginning to understand the complex processes by which some bacteria accelerate the corrosion process. Such microbially influenced corrosion (MIC) affects a variety of steel and cooper alloys used in many important commercial applications, such as underground pipes. This corrosion is particularly difficult to prevent. Anaerobic sulfate-reducing bacteria (SRB) are often associated with MIC.

What the UC researchers propose is to colonize the surface of metals with bacteria that secrete a protective polymer in which SRB cannot grow.

Bacterial colonization is an attractive approach because it is inherently inexpensive and is automatically regenerative: If the polymer film is scratched, further bacterial growth rapidly coats it again. The trick, of course, is to find bacteria that can produce a suitable polymer while competing successfully with SRB and other deleterious bacteria.

The proposed three-year research program, which has just begun, will first use bacteria that naturally produce a film of polysaccharide glycocalyx, which helps them adhere to solid surfaces. Once this process is characterized, genetic engineering techniques will be used to create a new bacterial strain that produces the protective polymer in desired amounts and prevents SRB-induced MIC. (*EPRI Journal*, September/October 1995)" For more information -

CONTACT: BARRY SYRETT (CA)

(415) 855-2956

EPA ASKS PESTICIDE REGISTRANTS TO SET PRIORITIES

(From *Utah Pesticide and Toxic News*, Utah State University Extension, Vol. XIII, No. 11, December 1995)

“EPA’s Office of Pesticide Programs has issued a pesticide regulation notice (PR 95-6) which asks pesticide registrants (manufacturers and formulators) to rank their top five pending registration applications as a way of helping the Agency set priorities for review. The pending applications include the registration of new pesticides, new uses of currently registered pesticides, and experimental use permits for pesticides not yet registered. The new policy targets conventional pesticides under review by the Office of Pesticide Program’s Registration Division and does not apply to biopesticides, which are already receiving priority review by the Biopesticides and Pollution Prevention Division. EPA has significantly increased productivity and registered a record number of new pesticides in the past fiscal year. However, a dramatic increase in registration applications in the past few years, coupled with ongoing resource constraints, has resulted in a significant backlog of registration applications for conventional pesticides. All reduced risk pesticides will continue to receive priority treatment, and the Agency will also take into account other internal priorities (for example, minor uses) in scheduling reviews. EPA is also requesting comments on whether or not the scheduled priority actions should be published in order to open the process to the public. (EPA, 11/06/95)”

EPA PESTICIDE PROGRAM DIALOGUE COMMITTEE CREATED

(From *Utah Pesticide and Toxic News*, Utah State University Extension, Vol. XIII, No. 11, December 1995)

“This notice announces the establishment of a Pesticide Program Dialogue Committee. This Committee is being established to provide a forum for a diverse group of individuals to provide advice and assistance to EPA’s Office of Pesticide Programs (OPP) regarding pesticide regulatory development and reform initiatives, evolving public policy and program implementation issues, and science issues associated with evaluating and reducing risks from use of pesticides. The Agency has determined that this is in the public interest and will assist the Agency in performing its duties as prescribed in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). Persons needing further information should contact: Margie Fehrenbach, Office of Pesticide Programs, Environmental Protection Agency, Mail Code 7501C, 401 M Street, SW, Washington, DC 20460, telephone: (703) 305-7090, e-mail: fehrenbach.margie@epamail.epa.gov.

EPA’s Office of Pesticide Programs (OPP) is entrusted with the responsibility of ensuring the safety of the American food supply; the protections from unreasonable risk or exposure of those who apply

pesticides, or are exposed to pesticides occupationally or through use of products; and, general protection of the environment and special ecosystems from potential risks posed by pesticides. OPP must also make sure that pesticides are regulated fairly and help ensure that effective measures for controlling pests are available through careful balancing of pesticide risks and benefits.

Pesticides are used in a remarkably diverse array of products, including insect repellents, agricultural weed killers, household disinfectants, swimming pool chemicals, to name a few. They are likely to be found or used in nearly every home and business in the United States, where over one billion pounds of pesticide chemicals are used each year. Thus, public concern over potential risks to human health and the environment from pesticides is significant.

While several mechanisms are in place to try to involve the public in pesticide decision-making activities, the Pesticide Program Dialogue Committee will bring together a broad cross-section of knowledgeable individuals from organizations representing divergent views to discuss pesticide regulatory, policy, and implementation issues. EPA proposed the establishment of a dialogue committee to foster the exchange of ideas and information so that feasible regulatory and policy changes could be developed. Dialogue with outside groups is essential if OPP is to be responsive to the needs of the affected public and industry organizations.

The creation of a Pesticide Program Dialogue Committee under the Federal Advisory Committee Act (FACA) will provide the structured environment for meaningful information exchanges and consensus building discussions. The Group will have approximately 20 members. OPP will carefully monitor membership to ensure that there is a balanced representation from industry/trade associations; pesticide user and commodity groups; consumer and environmental/public interest groups; and others. EPA anticipates that the committee will contain the following types of representatives: environmental/public interest groups, chemical industry/trade associations, commodity and user groups, State and Regional representatives, other Federal agencies, the public health community, congressional committees, academia, and the general public. (EPA, 10/16/95)"

WHITEBARK PINE NEWS DIGEST AVAILABLE

The publication *Nutcracker Notes*, a research and management newsletter about whitebark pine ecosystems is being published by the Fire Effects Research Project at the Intermountain Fire Sciences Lab in Missoula, MT. The publication contains summaries of the latest management projects and research study results for the declining whitebark pine forests. The Digest is available by DG or hard copy. To be added to the mailing list or for additional information -

CONTACT: BOB KEANE (MT)

(406) 329-4846

FAX (406) 329-4877

DG: R.KEANE:S22L01A

LPCAT 1995 RESEARCH PUBLICATION AVAILABLE

The publication *Laboratory for Pest Control Application Technology - Summary of Research*, December 1995, includes discussions of:

Current Projects -

- Spray Atomization and Patterning
- Drift and Targeting
- Dose-Transfer and Biological Impact
- Physical Property/Biological Impact Interactions
- Pesticide Resistance Studies
- Pesticide Risk Assessment
- Pesticide Risk Benefit Analyses,

Completed Projects -

- Atomization
- Evaluation of Electrostatics
- Pesticide Drift
- Evaporation
- Dose-Transfer Studies
- Pheromone Studies
- Soil Pesticides
- Development of "Slot Injection" Methodology for Corn Insects
- Nozzle Type and Stalkborer Control
- BCW Soil Insecticide Volatility Trials
- Worker Exposure
- Worker Pesticide Exposure with ATV Sprayers Using Immunoassays
- Worker Exposure to Spray Droplets
- Formulation/Containers/Disposal
- Pesticide Waste Management
- Water Dissolvable Bags
- Starch Encapsulation of Herbicides
- Temperature and Relative Humidity Effects of Sulfonylurea Herbicides
- Pesticide Resistance Studies

Also included are projects planned and a list of current publications and presentations.

For a copy of this summary, contact Professor Frank Hall, LPCAT, The Ohio State University, Ohio Agricultural Research and Development Center, 1680 Madison Avenue, Wooster, OH 44691, phone (Hall) 216-263-3726, (LPCAT) 216-263-3931, (Fax) 216-263-3686.

KILLER BEES ATTACK TREE TRIMMERS

(From *The Davis Enterprise*, Friday, December 29, 1995)

"Two tree trimmers were stung a total of 40 times by Africanized 'killer bees' in what agricultural officials said was the first attack of its kind in the state."

"The attack occurred Nov. 28 in eastern Riverside County near the Arizona border. It was reported Thursday after authorities confirmed the insects were 'killer bees.'

The two men were working in a stand of trees to clear branches away from power lines. Leyva was cutting branches in a 'cherry picker' machine about 25 feet in the air, just underneath the power lines, and Corea was on the ground.

Leyva said when he cut a branch with a circular saw, bees poured out and attacked him. Moments later the bees were all over his face, stinging him, and on his back and arms. Some crawled inside his shirt.

The attack was so intense that Leyva said he could not operate the cherry picker's controls to lower himself to the ground because the bees were all over his face and he could not make out the buttons of the controls."

"Leyva yelled for Corea, who was able to manually lower the cherry picker to the ground. The bees continued to sting Leyva for the two minutes it took Corea to bring the cherry picker down. When Leyva made it to the ground the bees began to sting Corea, too."

"We ran for 200-300 yards, with 10 or 15 bees following us the whole way," Leyva said."

"Leyva said the first time he and Corea tried to make their way back to the truck, the bees attacked again. But they tried later and made it into the cab."

In October, in Imperial County, which lies just to the south of Riverside County, officials announced that for the first time in California they had found an established nest in which bees were breeding and making honey.

"This is part of the graduation we expected all along," said Cal Kaminskas, Riverside County's assistant agricultural commissioner."

WILSON ACTS TO DELAY BAN ON TOXIC PESTICIDE

(From *Sacramento Bee*, December 30, 1995, by Ken Chavez)

"Gov. Pete Wilson gave California farmers new hope Friday that an upcoming ban on a widely used pesticide known to be toxic to humans could be postponed until further studies on the fumigant are completed.

Wilson called a special session of the Legislature - to run concurrently with the Jan. 3 start of the body's regular session - so that lawmakers may consider a delay of the March 30 ban on methyl bromide.

Farmers pump the chemical into the ground before planting foods such as strawberries, peaches and walnuts to kill crop-destroying worms.

However, the state Department of Pesticide Regulation has blamed the colorless, odorless gas for the deaths of 15 people since 1982. Methyl bromide has been shown to cause damage to human lungs, kidneys, eyes, skin and the central nervous system.

A 1984 law aimed at preventing birth defects called for a ban on methyl bromide production in 1991, but the deadline was extended for five years while health studies on the pesticide and another chemical - pentacholorophenal, a wood preservative - were conducted.

Farmers now are pushing for passage of a bill by Sen. Dick Monteith, R-Modesto, that would delay the ban even further - until December 1997, when the last of the studies is scheduled for completion. Farm-worker advocates and environmentalists are opposed to the measure.

Monteith's bill failed to clear the Legislature this year but may be brought back for reconsideration. Wilson's declaration of a special session would allow the bill, if passed, to become law 91 days after the special session is closed.

'It's very clear that methyl bromide will inevitably be banned because it is so toxic and so difficult to control,' said Ralph Lightstone, a lobbyist for California's Rural Legal Assistance. 'The real issue is, how many people will be poisoned before the ban is put into effect?' But Wilson said a ban on the chemical would be devastating to California's agriculture industry. 'If we are to remain a competitive economic force, both domestically and internationally, we must act now to prevent the suspended use of methyl bromide,' he said in a prepared statement.

Bob Vice, president of the California Farm Bureau Federation, said he's confident the Legislature will lift the March 30 ban."

PESTICIDE ADVISORY MEMORANDUM NO. 473

Pesticide Use Advisory Memorandum No. 473 which was prepared by Gary Smith, Region 6, while on detail with Forest Pest Management, Washington Office, consists of two indices which can be used to locate the pesticide background statements and risk assessments prepared by the Forest Service and cooperating natural resource agencies. The first index is a bibliographic reference of all background statements and risk assessments and the pesticides included in each. The second

index is a Master List of all current available pesticide documents for each pesticide chemical. For a copy of this document -

CONTACT: DAVE THOMAS (DC)

(202) 205-0889

NEW BOOK ON AVIATION WEATHER AVAILABLE

“*Aviation Weather* [by Peter F. Lester] is designed to help the new student of aviation understand the atmosphere in which he or she operates. It also serves as a valuable reference source for pilots at all levels of experience. Whether your connection to flying is as a new student to aviation, a certificated pilot, controller, dispatcher, scientist, engineer, or an interested passenger, *Aviation Weather* helps you understand the strong interdependence of aviation and meteorology through the use of over 300 full color illustrations and photographs. It is written with a minimum of mathematics and a maximum of practical information.

This dynamic new textbook uses the time-tested, proven study/review concept, pioneered by Jeppesen Sanderson. Detailed material is presented in an uncomplicated way with key terms clearly identified, FAA examination material is highlighted in color, and insight readings help add meaning to the information presented.”

For ordering information contact:

Jeppesen Sanderson, Inc.
55 Inverness Drive East
Englewood, Colorado 80112-5498

CLEAN RAIN STARVING CROPS

(From ASAE *Resource*, January 1996)

“Over the past 20 years, Germany has done such a good job of decreasing the amount of sulphur compounds raining down onto its arable and grazing land, that many of its crops are now actually deprived of the nutrient, which is vital to their growth.

At approximately 10 kilograms per hectare, sulphur concentrations today are comparable to those that existed prior to the industrial revolution.

For more than 10 years, Ewald Schnug has been investigating the impact of the reduction in sulphur concentration on rape plants. Crops with faded and deformed leaves, and stunted pods with only a few seeds are no longer a rare sight.

Other experts have discovered a deterioration in the baking quality of winter wheat.

Still, they aren't advocating a return to old 'bad habits;' rather, they recommend the use of additional fertilizers to remedy the sulphur deficiency. (*The German Research Service, Special Science Reports*, August 1995).

FUNGUS KILLS TOUGH WEEDS AND WIPES ITSELF OUT

(From *Pest Management News*, Vol. 7, No. 3, December 1995)

"Montana State University researchers have genetically altered *Sclerotinia sclerotiorum*, a naturally occurring fungus, for use as a biological control agent to fight tough weeds. Through years of genetic research the fungus has been altered so that it dies before it can spread.

Field tests in Montana and Mississippi have shown that genetically altered fungus can control spotted knapweed, Canada thistle, dandelions, white clover, mock strawberry, and Virginia buttonweed. Under favorable conditions, muted *S. sclerotiorum* organisms kill up to 90 percent of targeted weeds.

The altered genes created muted versions of the fungus. One version depends on a specific protein, not usually found free in nature. The protein is applied with the fungus to the targeted weed. Once the fungus starts to feed on the protein it is released with, it penetrates the weed to get more of the protein. Robbed of the protein, the weed dies. Without the supply of protein, the fungus also dies.

A second mutant works in much the same way, except that it does not die when the weed does. Instead it fails to produce sclerotia, which it needs to survive. Without the ability to produce sclerotia, it can not live through winter. This mutant does not produce spores.

Scientists must now resolve the safety issue, and develop cost-effective ways of mass rearing and applying the fungus. Both are major concerns facing the use of the product. For more information:

Dr. David Sands
Montana State University
Plant Pathology Dept.
Rm. 521 Leon Johnson Hall
Bozeman, MT 59717
Tel. (406) 994-5151
Fax (406) 994-1848

UPCOMING EVENTS

5-9 February 1996. **Forest Insect Management Course**, Sault Ste Marie, Ontario Canada.
Contact: Eileen Harvey, FPMI, (705) 757-5740 ext. 2251, Fax (705) 759-5728, E-Mail: Eharvey@pmoeafpm.fpmi.forestry.ca.

4-7 March 1996. **17th Vertebrate Pest Conference**, Sonoma County Red Lion Hotel, Rohnert Park, CA (about 50 miles north of San Francisco). Contact: John E. Borreco at (415) 705-2873 for additional information.

8-12 April 1996. **North American Forest Insect Work Conference, *Forest Entomology: Vision 20:21***, St. Anthony Hotel, San Antonio, TX. Contact: Ron Billings (409) 639-8170, Fax (409) 639-8175; or Evan Nebeker (601) 325-2984, Fax (601) 325-8837.

20-24 May 1996. **Training course sponsored by The Fish and Wildlife Service "Pesticide Effects to Fish and Wildlife Resources,"** to be held at the University of Wisconsin, School of Veterinary Medicine, Madison, WI. Registration deadline is February 1, 1996. Contact Dave Thomas at (202) 205-0889 for additional information.

9-11 July 1996. **National Steering Committee for Management of Seed, Cone and Regeneration Insects**, Bend, OR. Contact: Roger Sandquist at (503) 326-6222.

13-18 July 1996. **International Summer Meeting American Society of Agricultural Engineers (ASAE)**, Phoenix, AZ. Contact ASAE (616) 429-0300.

17-18 July 1996. **National Spray Model and Application Technology Steering Committee Meeting**, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

18-23 August 1996. **Joint IUFRO Conference on Population Dynamics, Impacts, and Integrated Pest Management of Forest Defoliating Insects**, Banska Stiavnica, Slovak Republic. Contact: Mike McManus (203) 230-4321, Fax (203) 230-4315; or Sandy Liebhold (305) 285-1609, Fax (305) 285-1505.

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send them in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA)	(916)757-8343
	FAX (916)757-8383
	DG: P.SKYLER:R05H
	E-MAIL: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Herzberg, D., N. Rappaport, and P. Pierson. 1995. Single tree spray systems - Progress report. 9534-2850-MTDC. USDA Forest Service, Missoula Technology & Development Center, Missoula, MT.

MacNichol, A.Z. 1995. Canopy penetration in almond orchards, Part 1: Efficiency of deposition within the canopy. FPM 96-3 (CDI Technical Note No. 95-14). Prepared under Contract No. 53-0343-4-00009 by Continuum Dynamics, Inc. for USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

Teske, M.E., J.W. Barry, and H.W. Thistle. 1996. FSCBG predictions of biological dose response coupled to decision support. In: *Pesticide Formulations and Application Systems, 16th Volume, ASTM STP 1312*, eds. Michael J. Hopkinson, Herbert M. Collins, and G. Robert Goss. Philadelphia, PA: American Society for Testing and Materials.

Thistle, H., A. Jasumback, W. Kilroy, K. Mierzejewski, and J. Barry. 1995. DGPS in aerial spraying in forestry: Demonstration and Testing - Final report. 9534-2848-MTDC. USDA Forest Service, Missoula Technology & Development Center, Missoula, MT.

Wang, Y., D.R. Miller, D.E. Anderson, and M.L. McManus. 1995. A Lagrangian stochastic model for aerial spray transport above an oak forest. In *Agricultural and Forest Meteorology* 76:277-291.

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team and the Pesticide-Use Management and Coordination Group co-sponsors and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

**IFIC REVIEW AVAILABLE
“PESTICIDES & FOOD SAFETY”**

Subjects discussed in the International Food Information Council Foundation (IFIC) review include background information on how pesticide tolerances are set, the U.S. pesticide residue monitoring program, how risk is calculated, pesticides and children, the Delaney Clause, consumer attitudes, IPM, and natural toxins. For a copy of the Review -

CONTACT: IFIC (DC) (202) 296-6540

HYACINTHS IN THE SACRAMENTO DELTA

(From *Sacramento Bee*, December 27, 1995, by Deb Kollars)

“During the past 10 years, the water hyacinth has spread rapidly throughout the lakes and streams of the Sacramento-San Joaquin Delta. The fast-growing plant has choked marinas, clogged flood-control channels, destroyed boat propellers, plugged farmers’ pumps, grounded water skiers, and created a new and worrisome breeding ground for mosquitos.

In the Stone Lakes National Wildlife Refuge, the dense proliferation of the water hyacinth is threatening egrets, herons, cormorants, otters, beavers, turtles and fish that depend on the Delta’s clear and open waterways for feeding and protection.

Three years ago, there were only a few isolated patches of water hyacinth in the 800 acres of Stone Lakes owned and managed by the U.S. Fish and Wildlife Service, refuge manager Thomas Harvey said. Today, more than half the open water habitat is covered with the leafy plants, whose long tubular stems bulge with air pockets.”

“Sacramento County Supervisor Don Nottoli, who represents the south county, has grown increasingly concerned about the plant’s spread into streams and drainage ditches because it could cause localized flooding. He has asked the county’s public works and water resources staff to begin exploring ways to eradicate the plant in Sacramento County.

It won’t be an easy job. The free-floating water hyacinth, or *Eichhornia*, is native to the tropics of South America. It was introduced in the United States around the turn of the century as a novel ornamental plant, said Valerie Van Way, a biologist with the State Department of Boating and Waterways. It found its way into channels, bayous and streams, and is known as one of the most aggressive and aggravating water pests in Florida, Louisiana and other states with plenty of sunshine and waterways.”

"The state Department of Boating and Waterways, which regulates navigable water routes in the state, began trying to control the water hyacinth during the early 1980s, said Van Way, aquatic pest control supervisor."

"Department crews remove the weed by hand when possible, she said. But when faced with plant colonies stretching for acres, Van Way and her crews usually spray with an herbicide called 2,4-D. Last year, they treated more than 2,700 acres in the Delta."

"This past year, the boating department chemically treated about 200 acres of water hyacinth in the Stone Lakes refuge, where the plant has aggressively taken hold during the past two years."

"Next year, Van Way said, her division will probably not be able to afford to eradicate in Stone Lakes because there is so much hyacinth to tackle elsewhere in the Delta. Her annual budget is about \$500,000, she said, with the money coming largely from boating fees and fuel taxes.

Refuge manager Harvey said he is working with area water and resource agencies to develop a joint program for getting rid of the plant.

The thick covering of plants over the water is preventing ducks and other diving birds and animals from feeding, he said.

In addition, the plant, which blooms in late summer, has long, fine roots that capture huge quantities of silt and other materials, clogging bodies of water and draining them of vital nutrients. As a result, oxygen levels are upset and algae and plankton are reduced, leaving fish without adequate food supplies, he said."

"If we can nip it in the bud in the early stages, we will do our best to avoid chemical treatments,' she [Van Way] said, adding that she is also researching other types of mechanical removal equipment.

Even more important, she said, people should not place water hyacinth plants in any of the streams or creeks that crisscross the Sacramento area - either for beautification or disposal.

'If you want to put it in your birdbath, fine. But please don't put it in that pretty creek behind your house,' she said."

For a complete copy of the article -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

GPS CROP MANAGEMENT SYSTEM BUILDS FIELD DATABASE

(From *Crop Protection Manager*, Vol. 9, No. 1, January 1996)

“Growers interested in precision farming can build a database on each field with the **Vision System** from Rockwell International Corporation.

The Vision System is a crop management, reporting and analysis tool designed specifically for precision farming applications. The product uses global positioning system (GPS) and geographic information system (GIS) hardware and software. Harvest data or other information recorded in the system is linked to the precise time, date and location in the field. Chemical use, crop moisture, yield, topography, soil type, weed infestation and more than 250 different types of data or layers can be overlaid on the field map.

This information can be used to build an expandable database on each field. The database allows farmers to see inputs, yields and other activities yard by yard and layer by layer in the field. The database also allows producers and crop consultants to write a prescription for each field and maximize variable rate input equipment.”

For additional information -

CONTACT: ROCKWELL (800) 321-2223

CUSTA (CANADA-UNITED STATES TRADE AGREEMENT) TECHNICAL WORKING GROUP ON PESTICIDES - ACCOMPLISHMENTS REPORT

(From *Pest Management News*, Vol. 7(3), December 1995)

“On July 8, 1993, Canada and the U.S. agreed on a number of new initiatives designed to improve health, safety and competitiveness in both countries.”

“Following the July 1993 meeting, the Technical Working Group (TWG) on Pesticides has held regularly scheduled meetings every six to nine months...”

“Currently, the TWG oversees eight major activities designed to achieve harmonization and promote public participation. They are:

communications with stakeholders and the public;

intergovernmental communications;

parallel registration review of a new pesticide;

harmonization of import tolerances/maximum residue limits (MRLs); coordination of minor use programs; reevaluation/reregistration of heavy-duty wood preservatives; technical cooperation in the areas of occupational exposure to pesticides, environmental fate and effects, toxicology, and non-agricultural and biological pesticides; and NAFTA and trilateralization."

For additional information -

CONTACT: CUSTA PROGRAM MANAGER (613) 952-5330
FAX (613) 998-1312

EPA TO CONDUCT PUBLIC MEETINGS ON WORKER PROTECTION STANDARDS

EPA plans to conduct several public meetings on the revised Worker Protection Standards (WPS) regulations which became fully effective January 1, 1995. The public meetings will provide an opportunity for those directly affected by the WPS to share their experiences and perceptions concerning the first year of implementation. Meetings will be held in Florida, Mississippi, Washington, Pennsylvania, Missouri, Indiana, California, Texas, Puerto Rico and the District of Columbia.

EPA is soliciting public comment and discussion on the following topics:

Available assistance from regulatory partners and others involved with the WPS.

Usefulness of available assistance.

Understanding WPS requirements.

Success in implementing the requirements.

Difficulties in implementing the requirements.

Suggestions to improve implementation.

As a follow-up to the public meetings, EPA will develop a summary of information gained. These tools will be used to develop strategies for improving the administration of the WPS.

CONTACT: DAVE THOMAS (DC)

(202) 205-0889

NORTHERN EUROPE'S 50% PESTICIDE CUTS

(From *AgraQuester, Inc.*, Issue #10, March 1996)

"Three northern European countries (Sweden, Denmark and the Netherlands) have passed legislation mandating reductions of 50% in total use of chemical pesticides by the year 2000. The cuts were developed in response to public concerns over agrichemical pollution. The concentration of pesticides in the upper layer of groundwater beneath 65% of agricultural land in the European Union is estimated to exceed drinking water standards. In addition, pesticide residues are increasingly used as trade barriers by importing countries. The pesticide reductions will be achieved through a combination of laws (eg. 3% tax on chemical pesticides in DK), grower education, regulatory restrictions on chemicals, and research and implementation of more sustainable methods and alternatives." (Source: P.C. Matteson, *American Entomologist*, Winter 1995:210-220.)

ALTERNATIVE PEST STRATEGY NEEDED

(From *Utah Pesticide and Toxic News*, Vol. XIV, No. 2, February 1996, Utah State University Extension)

"Ecologically based pest management is 'a profitable, safe, and durable approach to controlling pests in managed ecosystems,' says a new report from the National Research Council's Agriculture Board. The report, prepared by a committee composed primarily of plant and insect biologists and microbiologists, finds traditional chemical-based pest management strategies 'encourage short-term solutions that can be harmful to the environment and human health.' Ecologically based methods 'rely primarily on inputs of pest biological knowledge and secondarily on physical, chemical, and biological supplements for pest management.' The committee recommends combining methods such as crop rotation with use of beneficial organisms, genetically engineered crop varieties, and 'narrow-spectrum' pesticides as options to broad-spectrum pesticide use. The study was funded by USDA and EPA with support from the W.K. Kellogg Foundation." (C&EN, 1/8/96)

For a copy of *Ecologically Based Pest Management: New Solutions for a New Century* (\$49.95) -

CONTACT: NATIONAL ACADEMY PRESS (DC)

(202) 334-3313

COTTON WASTE BIODEGRADES OIL

(From *ASAE Resource*, Vol. 3, No. 3, March 1996)

"In Flora, Mississippi, one of the most economically underdeveloped areas in the United States, a minority-owned firm is cleaning up the environment and creating new jobs by finding a unique use for cotton waste. Environmental Remediation Technology, Inc. (ERT) is using cotton seed lint to absorb and biodegrade hydrocarbons.

The technology that ERT embraces is unique from all other absorbents. It uses an agricultural waste from cotton seed processing that carries an indigenous, naturally occurring bacteria within its cellulose structure. Under special conditions created by ERT, the bacteria can be nurtured and provided with enhanced growth conditions that not only keep them alive, but allow them to propagate, thus producing a biologically active absorbent.

The product, ENRECTECH-1, resembles fine sawdust when packaged. It absorbs and encapsulates hydrocarbons and other toxic materials from the surface of land and water, keeping a spill from leaching into the soil or water supply. It is harmless to plant, animal and aquatic life and may be used in swampy areas where it is difficult for workers to clean up a spill. The product is ideal for use at automobile accident sites, in garages and with local petroleum delivery trucks. When tilled into contaminated soil, the product absorbs the hydrocarbon, and the bacteria inside break down and degrade the hydrocarbon to decontaminate the site.

The Alternative Agricultural Research and Commercialization (AARC) Center, a USDA agency, is purchasing redeemable stock in ERT to accelerate commercialization of the technology. AARC seeks proposals from other private businesses that would like to commercialize environmentally friendly, industrial uses of agricultural and forestry materials of animal byproducts. For information about AARC, write AARC Center, 1056 South Building, 14th & Independence Ave, SW, Washington, DC 20250-0401. For product information -"

CONTACT: RICHARD BLACKMORE, ERT (MS)

(601 924-2552

A. TEMPLE BOWEN JOINS ECOGEN

A. Temple Bowen, Jr. has recently joined ECOGEN as their Forestry Development/Sales Manager. Temple will be heading up the new efforts by ECOGEN to develop a superior Bt formulation specifically designed for the unique needs of the forestry market.

CONTACT: A. TEMPLE BOWEN (NH)

(603) 924-8668
FAX (603) 924-7183

UPCOMING EVENTS

8-12 April 1996. **North American Forest Insect Work Conference, Forest Entomology: Vision 20:21**, St. Anthony Hotel, San Antonio, TX. Contact: Ron Billings (409) 639-8170, Fax (409) 639-8175; or Evan Nebeker (601) 325-2984, Fax (601) 325-8837.

20-24 May 1996. **Training course sponsored by The Fish and Wildlife Service "Pesticide Effects to Fish and Wildlife Resources,"** to be held at the University of Wisconsin, School of Veterinary Medicine, Madison, WI. Registration deadline is February 1, 1996. Contact Dave Thomas at (202) 205-0889 for additional information.

9-11 July 1996. **National Steering Committee for Management of Seed, Cone and Regeneration Insects**, Bend, OR. Contact: Roger Sandquist at (503) 326-6222.

13-18 July 1996. **International Summer Meeting American Society of Agricultural Engineers (ASAE)**, Phoenix, AZ. Contact ASAE (616) 429-0300.

16 July 1996. **Symposium - Decision Support Systems: Cost/Benefit/Environmental Approaches to Pest Management.** Phoenix, AZ. Contact Jack Barry (916) 757-8342. This will be a session of the ASAE meeting.

17 July 1996. **National Spray Model and Application Technology Steering Committee Meeting**, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

18-23 August 1996. **Joint IUFRO Conference on Population Dynamics, Impacts, and Integrated Pest Management of Forest Defoliating Insects**, Banska Stiavnica, Slovak Republic. Contact: Mike McManus (203) 230-4321, Fax (203) 230-4315; or Sandy Liebhold (305) 285-1609, Fax (305) 285-1505.

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Allwine, K.J., X. Bian, C.D. Whiteman, and H.W. Thistle. 1996. VALDRIFT - A valley atmospheric dispersion model with deposition. Presented at the *ninth joint conference on the applications of air pollution meteorology with A&WMA, american meteorological society*. Boston, MA.

MacNichol, A.Z. and M.E. Teske. 1996. Canopy penetration in almond orchards - Part 3: Biological response within the canopy. FHTET 96-04 (C.D.I. Technical Note 95-15). Prepared under Contract No. 53-0343-4-00009 by Continuum Dynamics, Inc. for USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

MacNichol, A.Z. 1996. FSCBG model comparisons with the 1980 Withlacoochee State Seed Orchard spray trials - Canopy deposition and spray drift. FHTET 96-05 (C.D.I. Technical Note 95-22). Prepared under Contract No. 53-0343-4-00009 by Continuum Dynamics, Inc. for USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

Miller, D.R., Wang, Y., Ducharme, K.M., Yang, X., Mierzejewski, K., McManus, M. and R. Reddon. 1996. Some atmospheric turbulence and stability effects on aerial spray penetration into hardwood forest canopies. *Forest Science* Vol. 42, No. 1.

Teske, M.E. 1996. FSCBG implementation into SpraySafe Manager - A decision support system. FHTET 96-02 (C.D.I. Technical Note 95-20). Prepared under Contract No. 53-0343-1-00153 by Continuum Dynamics, Inc. for USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

Thistle, Jr. H.W., M.E. Teske, and J.W. Barry. 1996. Incorporation of stability effects into a Lagrangian solver used to model wake and ambient dispersion in the atmosphere. Presented at the *ninth joint conference on the applications of air pollution meteorology with AUPMA, american meteorology society*. Boston, MA.

Twardus, D.B. (ed.). 1996. Directory of expertise. *Gypsy Moth News*, Issue No. 40, February.

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team and the Pesticide-Use Management and Coordination Group co-sponsors and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

In order to assist us in assessing future need and content of Short Subjects and Timely Tips for Pesticide Users, we plan to conduct a review and would appreciate your assisting us by completing and returning the following questionnaire/comment sheet. We thank you for the many supportive and encouraging comments that you have forwarded to us in the past.

PLEASE COMPLETE PART A OR B.

**PART A - USDA FOREST SERVICE READERS
QUESTIONNAIRE/COMMENTS**

1. I would like to see the continued publication of Short Subjects and Timely Tips for Pesticide Users. (Circle One)

Strongly agree

Agree

Disagree

Strongly disagree

No opinion

2. What do you like most about Short Subjects?

3. What do you like the least about Short Subjects?

4. I would like to see Short Subjects published. (Circle one)

Monthly

Every Other Month

Quarterly

5. I would be willing to submit forest-use pesticide and related articles in camera-ready form if Short Subjects continues. (Circle One)

Yes No

6. I redistribute Short Subjects to my colleagues and have circled the appropriate number to whom I forward either hard copy or electronic copy.

5

10

20

30

7. If I were in charge of Short Subjects these are the changes I would make.

8. I Find that Short Subjects provides information that directly helps me on my job and that I do not find in other professional publications I read. (Circle One)

Strongly agree
Agree
Disagree
Strongly disagree
No opinion

9. I find the non-pesticide articles in Short Subjects to be useful, informative, or related to my job. (Circle One)

Strongly agree
Agree
Disagree
Strongly disagree
No opinion

10. My job involves the following. (Circle all that apply)

Pesticide Coordinator	Pesticide User
Forest Manager	Forester
Forest Staff	Biologist
Professional	Other Professional
Technician	Other Technician

11. Please provide any additional comments and/or suggestions regarding Short Subjects that you feel would be helpful to us in conducting our review.

Please return by April 15, 1996 to:

Pat Skyler, Editor
Short Subjects & Timely Tips for Pesticide Users
C/O USDA Forest Service
Forest Health Technology Enterprise Team
2121C Second Street
Davis, CA 95616
FAX (916) 757-8383
DG: P.Skyler:R05H

**PART B - NON-USDA FOREST SERVICE READERS
QUESTIONNAIRE/COMMENTS**

1. I would like to see the continued publication of Short Subjects and Timely Tips for Pesticide Users. (Circle One)

Strongly agree

Agree

Disagree

Strongly disagree

No opinion

2. What do you like most about Short Subjects?

3. What do you like the least about Short Subjects?

4. I would like to see Short Subjects published. (Circle One)

Monthly

Every other month

Quarterly

5. I redistribute Short Subjects to my colleagues and have circled the appropriate number to whom I forward either hard copy or electronic copy.

5

10

20

30

6. I work for: (Circle those that apply)

Industry

Academia

State/County/City Government

U.S. Government

7. I perform (Circle One)

Research/Development

Sales

Management

Technical representation

Regulation

Environmental monitoring

8. I live in the Country of: (List your Country of residence)

9. My primary work is: (Circle One)

Forestry
Agriculture
Human Health

10. I Find that Short Subjects provides information that directly helps me on my job and that I do not find in other professional publications I read. (Circle One)

Strongly agree
Agree
Disagree
Strongly disagree
No opinion

11. I find the non-pesticide articles in Short Subjects to be useful, informative, or related to my job. (Circle One)

Strongly agree
Agree
Disagree
Strongly disagree
No opinion

12. Please provide any additional comments and/or suggestions regarding this newsletter that you feel would be helpful to us in conducting our review.

Please return by April 15, 1996 to:

Pat Skyler, Editor
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Davis, CA 95616
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FAX (916) 757-8383

CANADA THISTLE CONTROL IN THE FUTURE

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

“University of Minnesota researchers have isolated a bacteria known as *Pseudomonas syringae* *pv. tagetis* that kills Canada thistle plants. Symptoms are leaf distortion, dwarfing and yellowing, and bleaching of upper leaves, stems, and flowers. Heavy infected plants have been killed and mildly infected plants have [been] prevented from flowering or producing viable seed. The bacteria also is active on other weeds: common ragweed, giant ragweed, horseweed, jerusalem artichoke, and several other weed species. Other probable weeds like black nightshade, common lambsquarters, and redroot pigweed were unaffected.

Infection was consistent under extreme temperature and humidity. However, up to five applications were necessary to achieve adequate results.”

GAO CITES FLAWS IN PESTICIDE INCIDENT REPORTING

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

“EPA’s collection of data on incidents of adverse reactions to pesticides often falls short of providing information enough to determine whether action may be needed to protect the public health, the General Accounting Office has reported.

But the agency is taking some steps, including a major rewrite of the FIFRA Section 6(a)(2) rule requiring adverse reaction reports from registrants, to improve its collection and analysis of incident data, GAO reported to Sen. Harry Reid (D-Nev), who requested the review last year.

Existing guidance on 6(a)(2) reporting goes back to the 1970’s and is vague about what information is to be submitted, the report said.

The revision, which is not yet ready for publication as a final rule, will list specific requirements on data to be reported, including identification of the pesticide involved and a detailed summary of the incident being reported, the GAO said.

About 87% of the adverse reaction reports to EPA come from registrants, GAO auditors were told by OPP, but the agency’s Incident Data System, which was automated in 1992, also receives reports from states and other sources.

Because of staffing limitations, however, some 3,000 of the more than 12,000 reports received from 1992 through April 1995 had not yet been entered into the system, the GAO said.”

OSHA ISSUES REVISED EDITION OF BOOKLET ON PERSONAL PROTECTIVE EQUIPMENT

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

“The Occupational Safety and Health Administration (OSHA) has released the latest edition of its booklet on personal protective equipment (PPE). The booklet discusses the types of equipment most commonly used for protection of the head, including eyes and ears, and the torso, arms, hands and feet.”

“The pamphlet also spells out five conditions under which respirators must be used: in regulated areas, in emergencies, where engineering and work practice controls are inadequate, where exposures exceed permissible limits, and during maintenance and repair activities or during brief or intermittent operations where engineering and work practice controls are not feasible or required.

Also included are factors to be considered for selecting gloves such as toxic properties of substances, how the gloves will be used and their resistance to punctures, tears, or chemicals.

A single free copy of the booklet may be obtained by sending a self-addressed label to the U.S. Department of Labor, OSHA/OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535. Telephone (202) 219-4667, Fax (202) 219-9266.” (Ref. OSHA press release Sept. 6, 1995)

TICKS

(In *Focus*, Issue Number 7, Summer 1995, U.S. Army Center for Health Promotion and Preventive Medicine (Provisional), Aberdeen Proving Ground, MD)

“Taken from the May-June 1995 issue of the Technical Information Bulletin, Defense Pest Management Information Analysis Center, Armed Forest Pest Management Board (AFPMB), Washington, DC:

DEET doesn’t offer long-term protection against the tick that spreads [the agent of] Lyme disease, based on preliminary lab studies. Scientist Carl Schreck tested DEET and 29 other repellents against two ticks—the Lone Star tick, *Amblyomma americanum*, a major pest, and the deer tick [black-legged tick], *Ixodes scapularis*, which transmits [the agent of] Lyme disease. The repellents were applied to the hands of three volunteers and then exposed to the ticks. DEET and ten other repellents were effective for up to four hours against the Lone Star tick. But none of the repellents warded off deer ticks [black-legged ticks] after one hour, and most weren’t effective for more than ten minutes. Schreck said that if outdoor studies confirm lab tests, new, more effective repellents will be needed to control ticks that can spread [the agent of] Lyme disease.”

**NOTICE: NATIONAL PESTICIDE TELECOMMUNICATIONS NETWORK
CHANGES HOURS OF OPERATION AND IMPROVES
SERVICES TO THE PUBLIC**

(In *Focus*, Issue Number 7, Summer 1995, U.S. Army Center for Health Promotion and Preventive Medicine (Provisional), Aberdeen Proving Ground, MD)

“The National Pesticide Telecommunications Network (NPTN) has changed its hours of operation. Call toll-free: 6:30 AM - 4:30 PM (Pacific Time), Monday through Friday, 1-800-858-7378 General Public and 1-800-858-7377 Medical Professional/Government Agencies.

NPTN will soon be available on Internet. The Network provides services to the medical, veterinary and professional communities and general public in areas including: Pesticide product information, Pesticide poisoning recognition and management, Toxicology and symptomatic reviews, Health and environmental effects, and Clean-up and disposal procedures.”

PESTICIDES AND CANCER

(From *Health After 50*, (published in association with John Hopkins Medical Institutes), “Our Readers Ask” column, November 1995)

“**Q** Do the pesticide residues found on fruits and vegetables cause cancer?

A Because animal studies show that high concentrations of pesticides can cause cancer, federal regulations limit the amount of pesticide residues permitted on foods. These regulations are based on an ‘acceptable level of risk’ – calculated as causing an increase of no more than one cancer death per million people.

Government agencies monitor the food industry to be sure pesticides do not exceed legal limits. The Agriculture Department recently examined 7,328 items and detected excesses in 1.5% of the samples. Apples, celery, and peaches were the greatest offenders.

Eating less produce because of concern about pesticides would be unwise because the levels that may be present are unlikely to cause cancer. Furthermore, washing usually eliminates surface pesticides, although small amounts of some chemicals can be incorporated into the food itself. Studies also show that those who eat more fresh fruits and vegetables have lower cancer rates than those who consume less. Meanwhile, the three most effective ways to reduce cancer risk are not smoking, avoiding direct sunlight, and (possibly) consuming a low-fat diet.”

BIRCH BARK HAS AN ANTICANCER BITE

(From *Science News*, Vol. 148, October 7, 1995)

"Tree-loving Joyce Kilmer didn't foresee this. Last June, the drug taxol, derived from the Pacific yew tree, made headlines as a potent anticancer agent. Now betulinic acid, extracted from the bark of the common white birch, has emerged as the next potential sylvan pharmaceutical.

Unlike taxol, betulinic acid specifically affects melanoma cells. In mice, it blocks the growth of these skin cancers, which often spread to other organs. It also seems to leave normal cells unscathed, say researchers at the University of Illinois at Chicago.

Melanoma, which afflicts 1 in 90 white people over a lifetime, has the most rapidly rising incidence of any cancer in the United States. The drug most often used to treat it, DTIC, helps only a quarter of patients, and its effect soon fades. 'We clearly need something else,' says pharmaceutical biologist John M. Pezzuto, whose team reports on its studies in the October *Nature Medicine*.

The researchers extracted the raw material, betulin from the bark of birches culled from a Chicago parking lot.

From betulin they synthesized betulinic acid, and they tested it, along with other drugs, on human cancer cell cultures. These included lymph, lung, liver, and skin melanomas, plus some non-melanoma cancers. Betulinic acid wasn't the deadliest agent, but it stood out in its dogged focus on the melanoma cells. 'We don't know why,' Pezzuto says.

That focus may explain the compound's apparent kindness to normal cells, he speculates. Most anticancer drugs attack a variety of cancers but harm some body cells as well. Betulinic acid, however, may interact with something only in melanomas.

The researchers gave betulinic acid to a strain of mice whose weakened immune systems allow introduced cancers to grow readily. When they injected human melanoma cells into these mice, the compound 'completely inhibited the growth of tumors,' Pezzuto says. In mice with existing melanomas, betulinic acid stalled tumor growth.

Even at high doses, moreover, these effects came with none of the typical side effects of anticancer drugs, such as weight change, diarrhea, or organ damage. 'Having such results,' Pezzuto says, 'is really unusual.'

But Antonio Buzaid, a melanoma specialist at the University of Texas M.D. Anderson Cancer Center in Houston, warns against extrapolating from mice to humans. 'In most instances, such effective drugs don't pan out in people,' he says. Even so, he adds, betulinic acid's specificity may help finger what makes melanoma unique. -M. Centofanti"

METHYL BROMIDE DOESN'T STICK AROUND

(In *Science News*, Vol. 148, October 28, 1995)

"Methyl bromide, a powerful ozone destroyer, may survive in the atmosphere for less time than previously thought and therefore pose less of a threat to Earth's protective layer, a new study suggests."

"Scientists know that chemicals in the troposphere and the ocean break down some methyl bromide, rendering it harmless. They suspect that soil may play the same role."

A new study provides further evidence that bacteria in soil destroy atmospheric methyl bromide—and quickly, at that. Soil's fondness for the chemical reduces methyl bromide's estimated atmospheric lifetime to a little over 9 months, about two-thirds as long as previously thought, report Joanne H. Shorter of Aerodyne Research in Billerica, Mass., and her colleagues in the Oct. 26 *Nature*. The Methyl Bromide Global Coalition, a group of agricultural and chemical companies, funded the research.

The new findings also reduce methyl bromide's ozone depletion potential by roughly 30 percent, Shorter and her colleagues assert. That rate of depletion is still high enough to bring it within the scope of regulation by the Montreal Protocol and the Clean Air Act, says coauthor Charles Kolb, also of Aerodyne.

The destruction of methyl bromide by soil throws off some existing calculations of its global atmospheric abundance, says James H. Butler of the National Oceanic and Atmospheric Administration in Boulder, Colo. Previously, global estimates of the emission and absorption of methyl bromide were consistent with measured atmospheric concentrations, he says. But the additional absorption by soil upsets that balance.

The new results, he and the researchers emphasize, are preliminary.

'The problem in this business always is extrapolation,' says Butler. The scientists used only a few soil samples to calculate global averages of how much methyl bromide the soil absorbs. However, 'the measurements seem reasonably sound,' he adds.

The researchers tested in the laboratory and in the field different types of soil from four sites in the United States, Costa Rica, and Canada. They covered the soils with vials, then injected air containing methyl bromide into the vials. All of the surface soils consumed the chemical within minutes; forest soils in the temperate zone acted most rapidly, they report.

By applying antibiotics and fungicides to the soil samples, Shorter and her colleagues concluded that bacteria, not fungi or chemical processes, consumed methyl bromide.

Other researchers tracking the depletion rates of the large quantities of methyl bromide put on fields by farmers had found that soil decomposes the chemical slowly, says Butler. But that's because the fumigant kills the bacteria that would normally eat it, he points out.

Shorter and her colleagues studied lower concentrations of methyl bromide, much closer to typical atmospheric values. -T. Adler"

BOOKS AND PUBLICATIONS AVAILABLE

Weed Management Handbook

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

"Controlling problem weeds can be easier with the new 1995-1996 Montana, Utah, and Wyoming Weed Management Handbook developed by extension weed specialists at Montana State University, Utah State University and University of Wyoming.

Included in the extensive, practical handbook is information on:

Herbicides and their properties and applications;

Controlling problem weeds and poisonous plants;

Controlling non-cropland and right-of-way weeds; and

Controlling weeds in alfalfa, cereal grain, corn, fallow land, dry beans, grass seed, lentils, mint, peas, potatoes, sugar beets, sorghum, safflower, rangeland, and pastures."

To order these handbooks send \$10.00 per book to Montana State University Extension Publications, Culbertson Hall, Bozeman, MT 59717.

(The following three books are listed in: O'Grady, R.T. (ed.). Undated. Toxicology 1996 - Books and Journals. Washington, DC: Taylor & Francis)

Controlled Delivery of Crop Protection Agents

by R.M. Wilkins,
University of Newcastle, UK

"This is a useful book, filling a niche on the bookshelves of pesticide scientists in government, industry, and academia. It is up-to-date, provides a comprehensive list of references from a diversity

of sources...and reviews a range of technical, chemical, biological, and commercial topics. I will certainly refer to this book often...it is timely, useful and good value for [the] money." —*Plant Pathology*

"No one working in or around the area of crop protection agents could fail to increase their understanding, and probably get some good ideas too, by reading this book." —*Chemistry and Industry*

"This excellent series of review chapters is well presented and readable with appropriate well-executed figures and plates. ...presents an up-to-date assessment of this modern and rapidly developing field...." —*Biochemical Statistics and Ecology*

1990 - 340 pages, Cloth 0-85066-739-9 - \$120.00.

Pesticide Effects on Terrestrial Wildlife

Edited by L. Somerville, Schering Agrochemical, UK,
and R. Walker, University of Reading, UK

"The book gives a refreshingly practical insight into what is perhaps a rather confused area of wildlife toxicology and, as such, deserves a wide readership including those involved in pesticide development, reviews of pesticide registration data, and in particular, the agricultural industry as prime users of such products." —*British Toxicology Society Newsletter*

"...will prove invaluable to those interested in assessing the environmental effects of pesticides." —*Outlook on Agriculture*

1990 - 417 pages, Cloth 0-85066-767-4 - \$110.00

Pesticide Effects on Soil Microflora

Edited by L. Somerville, FBC Ltd.,
Essex, UK, and M.P. Greaves,
Long Ashton Research Station, Bristol, UK

1987 - 240 pages, Cloth 0-85066-365-2 - \$120.00

For information on ordering the above three books -

CONTACT: TAYLOR & FRANCIS (PA)

(800) 821-8312

**IN A DARK WOOD: The Fight Over Forests and
The Rising Tyranny of Ecology**

A Book by Alston Chase

(From *Science News Books*)

"Providing a great deal of background and insight into the environmental movement, both from within and from a political standpoint, Chase argues that biocentrists harbor unreasonable goals and hinder evolution. Structuring his book around the battle over the old-growth forests in the Pacific Northwest, he cites shortcomings within the environmental community, which saw a middle ground among people with like ideas erode into all-or-nothing agendas. HM, 1995, 535 p., hardcover, \$29.95"

For ordering information -

CONTACT: SCIENCE NEWS BOOKS (DC)

(800) 544-4565

**Ecology and Management of *Mindarus kinseyi*
Voegtl (Aphidoidea: Mindaridae)
on White-fir Seedlings at a California Forest Nursery**

by L.E. Ehler and M.G. Kinsey

In *Hilgardia* 62(1):1-62. This publication may be requested by writing Prof. L.E. Ehler, Dept. of Entomology, University of California Davis, Davis, CA 95616-8584, phone (916) 752-0484, Fax (916) 752-1537.

FOREST INSECT MANAGEMENT COURSE - FEBRUARY 1996

The Forest Insect Management Course is scheduled for February 5-9, 1996 in Sault Ste Marie, Ontario, Canada. This course is designed to advance the skills and knowledge of forestry professionals in current techniques and principles for planning, implementing and evaluating Forest Insect Management programs, not simply as tactical control programs, but in reference to the broader scope of Integrated Resource Management (IRM). Course instructors from across North America with world class technical reputations and superior communication skills will be facilitating a 10-day learning experience through lectures, field trips, practical field exercises and discussion groups.

This course is a cooperative Ontario Ministry of Natural Resources, Canadian Forest Service, Canadian Institute of Forestry venture. Upon completion of the Course, participants will be knowledgeable in: the essentials of entomology and principles of forest insect management; insect population

surveys and damage appraisals and impacts; insect management tactics and strategies; insecticide application technology; forest insect management efficacy and impact from a biological and economic perspective; and current advances and trends in organizing an insect pest management program.

For more details on this course, contact:

Eileen Harvey
Canadian Forest Service
Forest Pest Management Institute
1219 Queen Street East
Sault Ste Marie, Ontario
Canada P6A 5M7
Phone: (705) 757-5740 ext. 2251
Fax: (705) 759-5728
E-Mail: eharvey@pmoefpm.fpmi.forestry.ca

UPCOMING EVENTS

17-21 December 1995. Entomological Society of America Annual Meeting, Las Vegas Hilton, Las Vegas, NV. Contact: ESA, 9301 Annapolis Road, Lanham, MD, (301) 731-4535, Fax (301) 731-4538.

16-18 January 1996. 17th Annual Forest Vegetation Management Conference. Red Lion Inn, 1830 Hilltop Drive, Redding CA. Contact: Joe Sherlock, USDA Forest Service, Mi-Wok Ranger District, (209) 586-3234.

21-26 January 1996. IX International Symposium on Biological Control of Weeds. South Africa. Contact: J.H. Hoffmann, Zoology Department, University of Cape Town, Rondebosch 7700, South Africa. hoff@botzoo.uct.ac.za

22-26 January 1996. National Forest Pest Management Directors' and Pesticide-Use Coordinators' meetings (hosted by Region 5), Fountain Suites Hotel, 321 Bercut Drive, Sacramento, CA (800)767-1777 or (916)441-1444. Contact: John Borreco (415)705-2873.

4-7 March 1996. 17th Vertebrate Pest Conference. Sonoma County Red Lion Hotel, Rohnert Park, CA (about 50 miles north of San Francisco). Contact: John E. Borreco at (415) 705-2873 for additional information.

9-11 July 1996. National Steering Committee for Management of Seed, Cone and Regeneration Insects, Bend, OR. Contact: Roger Sandquist at (503) 326-6222.

13-18 July 1996. International Summer Meeting American Society of Agricultural Engineers (ASAE), Phoenix, AZ. Contact ASAE (616) 429-0300.

17-18 July 1996. National Spray Model and Application Technology Steering Committee Meeting, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send them in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA)

(916)757-8343

FAX (916)757-8383

DG: P.SKYLER:R05H

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PUBLICATIONS, REPORTS, AND PRESENTATIONS

Following is a list of papers presented at the Platform Session "Global Forest Pest Control Programs" held at the *Second SETAC World Congress - Global Environmental Protection: Science, Politics, and Common Sense*. Vancouver, BC, November 5-9, 1995.

Fate and Effects of Triclopyr Ester Herbicide in Canadian Forest Ecosystems. Thompson, D.G.; Kreutzweiser, D.P. (367)

Fate, Persistence and Impact of Glufosinate-ammonium and Bialaphos in a Northern Forest Ecosystem. Faber, M.; Thompson, D.; Stephenson, G. (368)

Effects of Neem Extracts on Aquatic Invertebrates. Kreutzweiser, D.P. (369)

Persistence of Diflubenzuron in Broad-leaved Appalachian Forests After Aerial Application of Dimilin. Wimmer, M.J. (370)

Comparative Impact of Gypsy Moth Insecticides to Non-Target Canopy Arthropods: *Bacillus thuringiensis*, Dimilin and Mimic. Butler, L. (371)

Energetics and Food Selection of Songbirds Breeding in Insecticide-treated Boreal Forest. Pauli, B.; Burgess, N.; Garrity, N.; Homes, S.; Barber, K.; McMartin, B. (372)

Nest Behavior and Reproduction of Tennessee Warblers in Forests Treated With a Lepidoptera-specific Insecticide. Holmes, S.B.; Barber, K.N. (373)

Changes in Diversity of Plant and Small Mammal Communities After Herbicide Application in Sub-Boreal Spruce Forest. Sullivan, T.P.; Lautenschlager, R.A.; Wagner, G. (374)

Movement and Fate of *Bacillus thuringiensis* var. *kurstaki* in Forested Canyons. Barry, J.; Thistle, H.; Teske, M. (375)

Integration of Aerial Application Simulation Models with Models of Biological Response: Validation and Uses. Richardson, B.; Barry, J.; Teske, M. (376)

For an abstract of the above papers -

CONTACT: JACK BARRY (CA) (916) 757-8342

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team and the Pesticide-Use Management and Coordination Group co-sponsors and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

SHORT SUBJECTS
AND TIMELY TIPS
FOR PESTICIDE USERS

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BIOLOGICAL CONTROL OF WEEDS

The inland west has experienced significant problems with exotic plant species, including the knapweeds, leafy spurge, rush skeletonweed, goatweed, and many others. Combating these ecological threats has required a truly integrated management approach.

The State of Montana has developed a very active program of biological control of these exotic species. Cooperating agencies include the Montana Department of Agriculture, the Cooperative Extension Service, the USDA Forest Service, USDA APHIS, USDA Agriculture Research Service, BLM, and the Montana Weed Control Association.

This past summer a series of field days provided training on the proper collection and redistribution of biological control agents on leafy spurge. Over 500,000 leafy spurge flea beetles (*Aphthona nigriscutis*) were redistributed to Montana counties, State lands, National Forests, BLM, National Park Service, and Reservation lands. *Aphthona* flea beetles have had dramatic effects in localized areas.

Other insects that were available on a more limited basis include:

For leafy spurge—Several other *Aphthona* flea species and the seed head fly *Spurgia esula*.

For spotted knapweed—The root moth, *Agapeta zoegana*, and the root weevil, *Cyphocleonus achates*.

For Russian knapweed—The leaf and stem nematode, *Subanguina picridis*.

For Dalmatian toadflax—The leaf moth, *Calophasia lunula*.

For musk thistle—The stem weevil, *Trichosiocalus horridus*, and the stem and root fly, *Cheilosia corydon*.

For field bindweed—The leaf and gall mite, *Aceria malherbe*.

For St. Johnswort—The leaf and flower moth, *Aplocera plagiata*.

CONTACT: ED MONNIG (MT)

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E.Monnig:R01A

PINE PITCH CANKER - AN INTRODUCED DISEASE

Pitch canker, *Fusarium subglutinans* f. sp. *pini*, is a recently introduced fungal disease of pines that was first discovered in Santa Cruz and Alameda (California) counties in 1986. Although a number of native and non-native California pines can acquire the disease, Monterey and Bishop pines are especially susceptible. Currently the disease has been recovered from 14 coastal and adjacent inland counties from San Diego to Mendocino. The disease symptoms are characterized by (1) resinous seeping from trunks, branches, and roots; (2) yellowed or brown needles at the tips of branches; (3) dieback in the crown of the trees; and (4) abortion of female cones.

Native insects such as cone, twig, and bark beetles are potential vectors of this disease and may hasten the spread. This new relationship between native insects and the introduced pitch canker fungus has allowed the disease to become well established in planted ornamentals and all three native Monterey pine stands along the coast of California. While there is serious concern about the threat to native Monterey pine and ornamental pines along the coastal habitats of California there is grave concern for other native pines in the coast Range, Cascade Range, and the Sierra Nevada. Disease spread can occur through transport of infected trees, and tree parts, bark beetle insect vectors, and the use of contaminated tools. For more information -

CONTACT: DON OWEN, (CA, CDF&FP)

(916) 224-2494

TREE SHELTER DURABILITY STUDY

(From *Technology & Development News*, September-October 1995)

"In June, Keith Windell [Missoula Technology & Development Center (MTDC)] presented a paper on tree shelter durability to the Tree Shelter Conference. The conference, held at the Wildwood Conference Center in Harrisburg, Pennsylvania, was sponsored by the Center for Urban Forestry of the University of Pennsylvania and the USDA Forest Service.

Tree shelters are currently used to help establish tree seedlings. These tubes have been shown to accelerate initial growth and can be a boon to reforestation efforts. A variety of shelter designs and materials are available from commercial vendors. The products vary from heavy-duty extruded tubes to flimsy sheet materials. MTDC and the Southern Research Station initiated a 5-year study employing seven different sites across the United States to measure the relative performance of the various materials and designs. Although the study is still in progress, the intermediate results presented in this paper will be helpful. It will be available for general distribution early next year." For more information -

CONTACT: KEITH WINDELL (MT)

(406) 329-3956

MALATHION FRUIT FLY REPLACEMENT POTENTIAL

(From *Utah Pesticide and Toxic News*, Vol. XIII, No. 9, September 1995, Cooperative Extension Service, Utah State University)

"EPA has approved an experimental use permit for large-scale field tests of a formulation of light-activated red dye, which has shown high potential for killing certain target pests in preliminary lab and field trials by researchers of the USDA. **SureDye** (tradename), the new product may be a replacement for the pesticide malathion, now used in bait sprays to control fruit fly pests in the United States. The field tests will be carried out in California (oranges), Hawaii (coffee), and Texas (grapefruit) by the Agricultural Research Service of the USDA. The red dye is mixed with a yellow dye that apparently works as a synergist. Both dyes have been approved for use by the Food and Drug Administration for products such as soap, lipstick, antacid medications and other drugs and cosmetics. In earlier tests, fruit flies in Hawaii and Texas ate tiny amounts of SureDye in sugar water and died after a few hours of exposure to light. As sunlight penetrates the insect's cuticle or body covering, the dye apparently collects the solar energy. The energy changes to a form that excites oxygen molecules, disabling the insect's cells to function and killing it. The dye concentrations in the preliminary tests were much smaller than the malathion concentrations currently used in bait sprays. (USDA, 8/14/95)"

CONTACT: HOWARD M. DEER (UT)

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ROTENONE USES TO BE DELETED

(From *Utah Pesticide and Toxic News*, Vol. XIII, No. 9, September 1995, Cooperative Extension Service, Utah State University)

"The Rotenone Task Force has announced plans to delete all the agricultural uses from rotenone labels due to the cost of reregistration. The registrants plan to maintain rotenone uses for fish control in reservoirs, lakes, ponds, and streams, and flea, tick, lice, and mite control on dogs and cats. They will reconsider the plans for deletion if someone is willing to develop the necessary data for reregistration. For additional information contact: Mr. Joe Conti, The Rotenone Task Force, AgrEvo Environmental Services, Phone 201-307-3366, Fax 201-307-3384. (RNN, 7/20/95)"

LINDANE WILL NOT UNDERGO SPECIAL REVIEW

(From *Utah Pesticide and Toxic News*, Vol. XIII, No. 9, September 1995, Cooperative Extension Service, Utah State University)

"The EPA has announced the decision not to initiate a Special Review for pesticide products containing **lindane**. They have determined that the reported lindane-induced kidney effects in male rats are not relevant for human risk assessment. Lindane will come under further regulatory review if the EPA determines that it plays a role as an endocrine disrupter. Lindane is currently registered for use to control insects on crops, fruit crops, vegetable crops, seed treatments, ornamentals, tobacco, pecans, greenhouse crops, forestry crops, and livestock. For additional information contact: Mr. David H. Chen, EPA, Special Review Branch, Phone 703-308-8027, Fax 703-308-8041, E-mail david@epamail.epa.gov."

7 PERCENT OF CISCO GROVE, CA DEER MICE CARRY HANTAVIRUS, STATE STUDY FINDS

by Catherine Gibbs

(From *Sacramento Bee*, October 14, 1995, Sacramento, CA))

"CISCO GROVE - Test results released Friday show that about 7 percent of the deer mice in Cisco Grove are carriers of hantavirus, a rare but often fatal disease that killed a San Pablo man Sept. 2, three weeks after he camped in the area.

A disease that begins with flu-like symptoms and rapidly progresses to life-threatening pneumonia, hantavirus is spread when the drying particles of saliva, urine or feces of rodents become airborne and are inhaled.

Due to earlier rodent extermination efforts, state workers were only able to trap 28 mice in Cisco Grove in Placer County, said Vicki Kramer, chief of the state's vector-borne disease center.

'We also tried trapping mice around his home in San Pablo but we found no evidence of deer mice,' she said. 'We found one house mouse and it was negative.'

The tests indicate the San Pablo man may have contacted the disease in Cisco Grove, but officials won't be sure until comparisons between the virus strain and the man's blood come back in about two weeks.

State officials also are conducting tests near Portola, following the infection of a 32-year-old woman in mid-September, Kramer said.

The virus has killed eight of 13 Californians infected since 1980.

Most of the California cases have occurred along the eastern edge of the Sierra Nevada, Kramer said.

In tests conducted last spring, the state found 53 percent of Truckee's deer mice carried hantavirus. The statewide average is about 13 percent, Kramer said.

The highest percentage, however, is at sea level in the Channel Islands off Santa Barbara. Though the average of the seven islands is 25 percent, Kramer said, Santa Cruz Island was 71 percent."

UNIVERSITY OF CALIFORNIA-DAVIS (UCD) DEVELOPS SAFER APPLICATORS FOR PESTICIDES

By Crystal Ross

(From *The Davis Enterprise*, October 9, 1995, Davis, CA)

"On Friday afternoon, the UCD department of biological and agricultural engineering introduced more than 75 members of the agricultural industry to the latest in 'intelligent spray technology.'

Demonstrations of an automatic spray drift and rate control system, an herbicide applicator and a precision crop sprayer were part of an industry gathering that drew people from California and throughout the Midwest.

Ken Giles, an associate professor in the department, explained how traditional spraying covers fields with chemicals which then drift away in the wind. The Synchro system, based on technology developed at UCD, uses flow-control valves on each spray nozzle, as well as boom pressure-regulating valves to independently control flow rate and droplet size. 'This system allows you to reduce that tendency for (chemical drops) to blow away,' Giles said. Chemical drift is reduced with the help of

a commercial version of the technology used in the U.S. military's satellite global positioning system. A combination of six satellites send messages to the tractor's computer, locating the latitude and longitude of the plants. The nozzles then turn on and off, spraying only the plants. The driver of the tractor can increase the size of the drops by adjusting a switch inside the cab. 'We think it allows a tremendous reduction in the amount of pesticide applied,' Giles said. Engineers have been working on the system since 1987 and expect it to be sold sometime next year. A Kansas-based company, Capstan Ag Systems, Inc. has licensed the system.

The California Transportation System [Caltrans] will soon benefit from a 'smart' herbicide applicator developed at UCD. The applicator uses a mounted video camera and computer-controlled spray valves to apply herbicide only to weeds - not the ground area surrounding them."

"It's an effort to minimize the amount of herbicide that gets sprayed,' said Chris Tauzer, a biological and agricultural engineering graduate student. Tauzer said Caltrans will soon be required by law to reduce the amount of chemicals it uses. However, it will implement the new application system by the end of this month.

Associate Professor Dave Slaughter demonstrated a precision crop sprayer that applies insecticides and fungicides to row crops without spraying the surrounding area. Machine 'vision,' using video cameras and on-board computer hardware, provides precise control of the location of the spray nozzle and the width of the band of spray. Only the crop plants are sprayed. 'The goal is to just apply the chemical to the target,' he said. 'We want to avoid spraying the soil with chemicals that might get washed into the ground water.'

Slaughter also helped develop a tomato cultivator, mounted with cameras and a computer, that operates much the same way as the sprayer. The cultivator was demonstrated to members of the agricultural industry last June. Cameras mounted on the cultivator send pictures to a computer, which then tells the cultivating disc which plants are tomatoes and which are weeds. Engineers at UCD have been working on the spraying system since 1990. Slaughter said the system is in the early stages as far as being made available to the public. He described it as a 'research tool,' at this point, because the department must first demonstrate the feasibility of the system. Then researchers must collect hard data to back that up. But Slaughter hopes the system will be licensed soon."

CONTACT: KEN GILES (CA)

(916) 752-0687

DO "GREEN" PRODUCTS WORK?

(From *Utah Pesticide Toxic News*, Vol. XIII, No. 7, July 1995, Cooperative Extension Service, Utah State University)

"Environmentalists and a number of state agencies have recommended the use of 'green' products as alternatives to disinfectant cleaners. The alternative products most often cited are borax, vinegar, ammonia, and baking soda. None are registered with the U.S. Environmental Protection Agency as disinfectants or sanitizers.

This study, reported in the March, 1995 *Journal of Environmental Health*, titled *Antibacterial Activity of Environmentally 'Green' Alternative Products Tested in Standard Antimicrobial Tests and a Simulated In-Use Assay*, examines the ability of 'green' products to kill or eliminate representative Gram positive and Gram negative bacteria from nonporous surfaces. The antimicrobial activity of the products was assessed in the first phase of the study using laboratory tests which are required for EPA registration of antibacterial products. None of the alternative products demonstrated required levels of disinfectant activity against *Staphylococcus aureus* or *Salmonella choleraesuis* by the Association for Official Analytical Chemists (AOAC) Use Dilution Method. None of the 'green' products achieved required levels of sanitizing activity against *S. aureus* and *Klebsiella pneumoniae* in the EPA Non-Food Contact Sanitizer Test.

The ability of 'green' products to kill and remove bacteria under in-use conditions was then examined using a method designed to include mechanical removal of bacteria from surfaces as a function of the disinfection process. Formica surfaces were contaminated with either *S. aureus* or *Escherichia coli*, dried, treated with a 'green' product, and mechanically scrubbed with sterile, premoistened synthetic sponge. Bacteria were quantitatively recovered from the formica surface and the sponge, and recovery counts were compared to those of water alone and an EPA registered disinfectant. The 'green' products showed no significant reduction in bacterial levels on the surface and showed a high level of contamination transferred to the sponge. In contrast, the EPA approved disinfectant reduced counts on both the surface and the sponge to minimal or nondetectable levels for both types of bacteria. (3/95, JEH)"

CONTACT: HOWARD M. DEER (UT)

(801) 797-1600

MICROBIAL PESTICIDE REGISTRATIONS

(From *Utah Pesticide and Toxic News*, Vol. XIII, No. 7, July 1995, Cooperative Extension Service, Utah State University)

"Year	Organism Registered	Target Species
BACTERIA		
1948	<i>Bacillus popilliae</i>	Japanese beetle larvae
1961	B.t. <i>Bacillus thuringiensis</i>	Lepidopteran larvae
1979	<i>Agrobacterium radiobacter</i>	Crown gall disease
1981	B.t. subsp. <i>israelensis</i>	Dipteran larvae
1988	<i>Pseudomonas fluorescens</i>	<i>Pythium</i> , <i>Rhizoctonia</i> seedling disease complex
1988	B.t. var. <i>san diego</i>	Coleopteran larvae
1988	B.t. subsp. <i>tenebrionis</i>	Coleopteran larvae
1989	B.t. subsp. <i>kurstaki</i>	Lepidopteran, Coleopteran larvae
1991	<i>Bacillus sphaericus</i>	Dipteran larvae
1992	<i>Bacillus subtilis</i>	Damping off disease
1992	B.t. subsp. <i>aizawai</i>	Lepidopteran larvae
1992	<i>Pseudomonas cepacia</i>	Damping off disease, nematodes
1993	<i>Streptomyces griseoviridis</i>	Various fungi
1994	<i>Bacillus subtilis</i>	Various fungi
FUNGI		
1981	<i>Phytophthora palmivora</i>	Citrus strangler vine
1982	<i>Colletotrichum gloeosporioides</i>	Northern joint vetch
1989	<i>Trichoderma harzianum</i>	Tree would decay
1989	<i>Trichoderma polysporum</i>	Wood rot
1990	<i>Gliocladium virens</i>	<i>Pythium</i> , <i>Rhizoctonia</i>
1990	<i>Trichoderma harzianum</i>	Damping off disease
1991	<i>Lagendium giganteum</i>	Mosquito larvae
1993	<i>Metarhizium anisopliae</i>	Cockroach, fly
1994	<i>Puccinia canaliculata</i>	Yellow nutsedge
PROTOZOA		
1980	<i>Nosema locustae</i>	Grasshoppers
VIRUSES		
1975	<i>Heliothis</i> Nucleopolyhedrosis virus (NPV)	Cotton bollworm
1976	Tussock Moth NPV	Bud worm
1978	Gypsy Moth NPV	Douglas fir tussock moth larvae
1993	Armyworm NPV	Gypsy moth larvae
1994	Alfalfa Looper NPV	Beet armyworm larvae
		Alfalfa looper larvae (CCPI, 11/94)"

FOREST INSECT MANAGEMENT COURSE - FEBRUARY 1996

The Forest Insect Management Course is scheduled for February 5-9, 1996 in Sault Ste Marie, Ontario, Canada. This course is designed to advance the skills and knowledge of forestry professionals in current techniques and principles for planning, implementing and evaluating Forest Insect Management programs, not simply as tactical control programs, but in reference to the broader scope of Integrated Resource Management (IRM). Course instructors from across North America with world class technical reputations and superior communication skills will be facilitating a 10-day learning experience through lectures, field trips, practical field exercises and discussion groups.

This course is a cooperative Ontario Ministry of Natural Resources, Canadian Forest Service, Canadian Institute of Forestry venture. Upon completion of the Course, participants will be knowledgeable in: the essentials of entomology and principles of forest insect management; insect population surveys and damage appraisals and impacts; insect management tactics and strategies; insecticide application technology; forest insect management efficacy and impact from a biological and economic perspective; and current advances and trends in organizing an insect pest management program.

For more details on this course, contact:

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E-Mail: eharvey@pmoeafpm.fpmi.forestry.ca

BEE FACTS DU JOUR

(The following "bee" facts are from an article in the *Sacramento Bee*, July 5, 1995, Sacramento, CA,)

Did you know that:

Bees in America's 2.8 million commercial beehives converted nectar from flowers into 217 million pounds of honey in 1994.

California has the most beehives - 400,000.

Montana has the most productive bees, 105 lb. per hive while New Jersey has the least productive, 33 lb. per hive.

North Dakota is the top honey-producer, 32 million lb. while South Dakota, is second, with 26 million lb.

Hawaii's nine beehives produced an average of 177 lb. of honey in 1993

(Source: Agriculture Department)

...anyone know how much honey is produced from foraging on NFS lands, from openings resulting from clear cuts, burns?

CONTACT: JACK BARRY (CA)

(916) 757-8342

ABBOTT LABORATORIES ACQUIRES NOVO NORDISK'S BIOPESTICIDES

Novo Nordisk, a Denmark pharmaceutical and biotechnology company, announced sale of its biological plant protection divisions. Effective October 30, Abbott Laboratories will acquire Novo Nordisk's biological pesticide trademarks, patents, and technology. Abbott produces Dipel products which are used to control defoliating and other insects in forestry and agriculture. The Novo Entotech research facility at Davis, CA is scheduled for closure; however, Novo's Biotech, Inc. enzyme research at Davis will not be affected by the closure.

CONTACT: JACK BARRY (CA)

(916) 757-8342

UPCOMING EVENTS

5-8 November 1995. Seventh Eastern Wildlife Damage Management Conference, Holiday Inn North, Jackson, MS. Contact: Dean Steward (601) 325-3177 or Phil Mastrangelo (601) 325-3014.

6-10 November 1995. 16th Annual Meeting Society of Environmental Toxicology and Chemistry (SETAC), Vancouver, BC. Contact SETAC (904) 469-1500.

17-21 December 1995. Entomological Society of America Annual Meeting, Las Vegas Hilton, Las Vegas, NV. Contact: ESA, 9301 Annapolis Road, Lanham, MD, (301) 731-4535, Fax (301) 731-4538.

21-26 January 1996. IX International Symposium on Biological Control of Weeds. South Africa. Contact: J.H. Hoffmann, Zoology Department, University of Cape Town, Rondebosch 7700, South Africa. hoff@botzoo.uct.ac.za

4-7 March 1996. 17th Vertebrate Pest Conference. Sonoma County Red Lion Hotel, Rohnert Park, CA (about 50 miles north of San Francisco). Contact: John E. Borreco at (415) 705-2873 for additional information.

13-18 July 1996. International Summer Meeting American Society of Agricultural Engineers (ASAE), Phoenix, AZ. Contact ASAE (616) 429-0300.

17-18 July 1996. National Spray Model and Application Technology Steering Committee Meeting, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

CALL FOR ARTICLES

Please forward to me by the 13th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send them in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

CONTACT: PAT SKYLER (CA) (916)757-8343
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PUBLICATIONS, REPORTS, AND PRESENTATIONS

Brenton, R.K. (Chair). 1995. *Proceedings* 16th annual forest vegetation management conference, January 10-12, Sacramento, CA.

Barry, J.W., P.J. Skyler, and N. Whitmire. 1995. FY 95 accomplishments - Forest Health Technology Enterprise Team-Davis. FPM 96-2. USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team and the Pesticide-Use Management and Coordination Group co-sponsors and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

SHORT SUBJECTS
AND TIMELY TIPS
FOR PESTICIDE USERS

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VIRUSES SOURCE OF SOME FOREST DAMAGE

(From ASAE *Resource*, November 1995)

“Although in recent years, attention has focused on new, human-induced sources of forest damage, fungi, insects and even viruses are also responsible for the current plight of many forests.

Scientists from the Institute for Applied Botany at the University of Hamburg in Germany have discovered that many types of viral diseases affecting wood go undetected and are often attributed to climatic factors such as drought or frost.

Since the viruses concerned are able to spread easily and undetected via natural or genetically engineered seeds, the Hamburg team is now urging that only virus-screened seeds be used in reforestation or recultivation measures. Failure to implement this regime, they contend, could lead to a weakening of stocks due to unspecific stress symptoms. (*The German Research Service: Special Science Reports*, June 1995)."

KAMIKAZE FUNGUS

(From ASAE *Resource*, November 1995)

"David Sands, a Montana State University scientist, has pioneered the development of what he describes as a 'Doberman on a leash.'

In its wild state, *Sclerotinia sclerotiorum* is a vicious killer that attacks a wide range of broadleaf plants, including spotted knapweed, Canada thistle, dandelion, and more than 40 other weeds, as well as such desirable plants as safflower, lentils and peas.

Sands and two colleagues have tamed and groomed the naturally occurring fungus for use as a biological-control agent to fight tough weeds. In its altered form, *Sclerotinia sclerotiorum* dies before it has a chance to spread.

Sands calls this a 'renegade' approach to biological control. 'Novel' and 'revolutionary' are terms used by other scientists.

Paul Zorner, director of product development for Mycogen, a California-based commercial biocontrol company, says the approach has merit.

He's saying, 'Let's take a pathogen that is just a real mean guy and do some things to it to prevent it from becoming an environmental problem, then put it out there.' (*The Furrow*, Corn Belt Edition/Summer 1995)."

NORTH DAKOTA FIRST STATE TO GET APPROVAL FOR ENDANGERED SPECIES-PESTICIDES PLAN

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

"North Dakota has become the first state to receive federal approval for its Endangered Species-Pesticide Management Program.

William P. Yellowtail, Denver, regional administrator for the U.S. Environmental Protection Agency, informed Commissioner of Agriculture Sarah Vogel that the plan had been reviewed and approved by both the EPA and the U.S. Fish and Wildlife Service.

'It is my understanding that this is the first, final, signed, regionally approved...state initiated plan,' Yellowtail wrote. 'Congratulations, and keep up the good work.'

The management plan provides that three species – the bald eagle, the interior least tern and the piping plover – are to be protected from exposure to certain pesticides. Farmers and ranchers who operate in the breeding areas of these species may be able to use these pesticides, however, if onsite inspection teams determine that such use does not endanger the birds.

Vogel credited the work of the Department of Agriculture Pesticide Division, especially Director Barry Coleman and Program Coordinator Kenneth Junkert; with developing and implementing the program.

'Barry and Ken did an outstanding job of putting together a program that meets the requirements of the federal mandate, yet gives North Dakota farmers the possibility of using farm chemicals that may otherwise be unavailable to them.' Vogel said.

The commissioner also credited the North Dakota Game and Fish Department, the North Dakota State University Extension Service and the Fish and Wildlife Service for their assistance in developing the plan.

For more information please call Sarah Vogel at (701) 328-2231 or Barry Coleman at (701) 328-4756." (From: AGvocate July 6, 1995)

BIOTOXIN AND ALGAE...COMBINED

(From *North Dakota Pesticide Quarterly*, October 1995, Vol. 13, No. 4. North Dakota State University, NDSU Extension Service, Fargo, ND)

"The Cyanotech Corp., in conjunction with the University of Memphis, has developed a new mosquito-control agent that combines a toxin gene cloned from the *Bacillus thuringiensis* var. *israelensis* (Bti) bacteria with a type of blue-green algae called *Synechococcus*. This new insecticide works on the premise that the Bti toxin is specifically lethal to mosquitoes and black flies. And since *Synechococcus* blue-green algae is the preferred food source of mosquito larvae, the combination of these two elements forms a great, environmentally safe way to combat mosquitoes. The Bti bacteria has been used before to combat mosquitoes, but it has several problems relating to cost and residual life. Scientists hope that using the algae as part of the insecticide will alleviate these problems and make Bti-based mosquito treatments more available world-wide." (From: **Pesticide Coordinator Report** Vol. 18, No. 8, CES University of the District of Columbia)

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GYPSES - A DECISION SUPPORT SYSTEM
FOR GYPSY MOTH MANAGEMENT

Daniel B. Twardus
USDA Forest Service, S&PF, NA

The use of computer technology to assist in gypsy moth management is the focus of a new product rolling off the production line at Morgantown Forestry Sciences Laboratory in Morgantown, West Virginia. GypsES (gypsy moth expert system now called decision support system) has been under development for several years as a joint effort between two USDA Forest Service units, State and Private Forestry and the Northeastern Forest Experiment Station. State and Private Forestry personnel in the Northeastern Area, Region 8, and the Washington Office, FHTET-Davis, participated in development.

What is it?

GypsES, is a computer software package developed for forest pest managers who conduct gypsy moth management projects. Developed as a decision support system, GypsES provides pest managers with a tool-box of computer-based assistance. This includes:

A geographic information system (GIS) framework enabling the creation of map sets, map analysis, and on-screen digitizing with topographic map backdrops.

The use of models to predict defoliation, hazard, risk, tree mortality, phenology, biological dose response, spray deposit and spray drift.

A pheromone trap survey assistance package for eradication projects.

GypsES, has several components or modules designed to assist in particular phases of gypsy moth management. A FOREST component uses forest data to calculate forest susceptibility. Susceptibility is overlaid with gypsy moth population data to create hazard. And hazard is overlaid with management values to create risk. An ERADICATION component assists in establishing pheromone trap grids at varying levels of intensity. A TREATMENT component assists in spray area delineation, predicting potential forest damage within proposed spray areas, predicting spray deposit and drift, and incorporating actual flight lines obtained from geo-positional navigational systems.

GIS functions within GypsES use a public domain mapping software (GRASS), which has been tailored to fit the needs of pest management operations. A user-friendly interface has been developed for GIS functions which include on-screen digitizing, map editing, overlays, and import/export procedures. Mapping within GypsES is done with topographic map back-drops. This allows users to actually "see" where they are when creating or displaying treatment areas.

The integration of knowledge into a tool-box type framework is one of the key features of GypsES. For example, within GypsES, a user can use susceptibility research to determine the likelihood of gypsy moth defoliation; population dynamics research to determine levels of defoliation, and insect development rates; impact research to predict tree mortality, and insecticide deposition research to predict deposit within and outside of proposed treatment areas.

Predicting spray deposit and drift:

The Forest Service Cramer-Barry-Grim (FSCBG) spray deposit model developed by the USDA Forest Service under the direction of Jack Barry, Davis, California, is used within GypsES as the method of calculating potential deposit within treatment areas, and potential drift to exclusion zones nearby. A user-friendly interface has been created within GypsES providing simple access to the power of FSCBG. Enhancements currently under contract include: calculation of "kill" zones using biological dose-response relationships, and fitting actual spray flight lines over predicted flight lines. Enhancements to FSCBG applications within GypsES are being developed by Milt Teske, Continuum Dynamics, Inc., Princeton, NJ.

This incorporation of FSCBG within GypsES is an example of how research products or information are integrated within the decision support framework. Other examples include GMPHEN, a phenology model; Stand Damage, a tree mortality prediction model; two defoliation prediction models; and the gypsy moth Life Systems Model, used for population dynamics predictions.

GypsES is a Unix application and runs on computers with a Pentium processor and at least 32 mb of RAM. Due to the enormous amounts of data used in mapping applications, GypsES requires hard disk memory storage capabilities in the gigabyte range.

Who uses GypsES?

At present GypsES has a Beta test group of users including: Prince William County Virginia, the Arkansas Plant Board, the Virginia Department of Consumer Affairs, the Ohio Department of Agriculture, the Indiana Department of Natural Resources, the North Carolina Department of Agriculture, and the Tennessee Division of Forestry. All users are actively involved in gypsy moth suppression or eradication projects.

As can be imagined a software project of this magnitude (GypsES contains over 250,000 lines of computer code) requires substantial input from a variety of specialists. The present development team consists of:

Project leaders:

Daniel B. Twardus, entomologist - Project coordinator, Northeastern Area
John H. Ghent, entomologist - Project coordinator, Region 8
Kurt Gottschalk, research forester - Project coordinator, Northeast Station

Development team:

Susan Thomas, computer programmer - Lead programmer and System Design
David Breakey, computer programmer - User support
Ann Cumming, cartographer - Data Development
Doug Mason, computer programmer - Programming assistance

Technical team:

Jim Colbert, mathematician - Life systems model applications
George Racin, computer programmer - Life systems model applications
Jack Barry, entomologist - FSCBG applications
Milt Teske, engineer - FSCBG applications

Information about GypsES and computer system requirements can be obtained by contacting John Ghent, Forest Health, Asheville, North Carolina at (704) 257-4328 or Dan Twardus, S&PF, Forest Health, Morgantown, West Virginia, at (304) 285-1545.

The registrants for neem products may be contacted for product labels and Material Safety Data Sheets:

W.R. Grace & Co.
7379 Route 32
Columbia, MD 21044
410-531-4131

Agridyne Tech., Inc.
2401 S. Foothill Dr.
Salt Lake City, UT 84109
800-657-3090

"Triact 90EC", "Neemazad"

"Azatin EC", "Azatin-Plus EC"

For a copy of the EPA Fact Sheet -

CONTACT: GARY SMITH (OR)

(503) 326-2728

ENVIRONMENTAL FATE STUDY COMPLETED

Dr. Mike Newton, Oregon State University, just completed an environmental fate study of triclopyr, imazapyr, hexazinine, and glyphosate at 59-65 degrees north latitude (south-central and interior Alaska). Residues in the subarctic appear to follow trends observed in temperate climates during winter. To obtain copies of the abstract (Weed Science Soc. of America) -

CONTACT: ED HOLSTEN (AK)

(907) 271-2573

METHYL BROMIDE ALTERNATIVES CONFERENCE

Scientists from around the world met in California, November 6-8, to report on research progress on developing alternative treatments to the fumigant methyl bromide. Methyl bromide (MB) has been the silver bullet for protecting many minor use crops and plant material in international trade. It is cheap and reliable and kills many serious weed, insect, disease and nematode pests. Methyl bromide dissipates readily; the only problem is, it is predicted to move into the stratosphere, where it destroys the planet's protective ozone layer.

The ozone-destroying potential of methyl bromide has caused the United Nations to agree to a general phaseout of MB by 2001, as part of an international agreement called the Montreal Protocol. Exemptions may be granted where no viable alternative exists. Developing countries may continue to use MB in some circumstances for up to ten additional years. However, in the United States the more limiting provisions of the Clean Air Act apply: all U.S. production and use of MB will be cancelled; no exceptions.

The impacts on forestry are potentially twofold. Methyl bromide is an effective preplanting fumigant for forest nurseries. Methyl bromide is also used to kill exotic organisms of potential importance as forest pests in international movement of wood products and other articles. Research progress on substitutes for such critical uses was the topic of this conference.

NEEM - A NATURAL INSECTICIDE

For centuries, farmers in Asia and Africa have used oil extracts from the tropical neem tree (*Azadirachta indica*) for pest control. Neem oil contains a complex of biologically active compounds which provide multiple modes of action against insects, mites, fungi, and bacteria. The various active ingredients may act as direct toxins, feeding or egg-laying deterrents, growth retardants, repellents, or sterilants. Neem has contact activity, and limited systemic activity in some plants.

Recent attention has focused on neem as a commercially-produced botanical pesticide because of its several favorable characteristics:

- o The complex modes of action reduce the probability of development of resistance by target organisms.
- o Toxicity to mammals of neem oil appears to be very low.
- o Persistence of neem oil in the environment appears to be brief.
- o Public acceptance may be greater for the use of a botanically-based "natural" pesticide in forest management.

Neem-based pesticides are only beginning to appear in U.S. markets. U.S. Environmental Protection Agency (EPA) recently announced two developments of interest to forestry:

EPA has issued a Pesticide Fact Sheet on clarified hydrophobic extract of neem oil. The Fact Sheet describes the uses, targets, science findings and risk assessment for this compound. It constitutes a basis for risk assessment of proposed forest management uses.

EPA has registered a neem oil product with insecticidal, miticidal, and fungicidal properties. The product, called "Triact 90EC"(tm), is registered for use on non-food/non-feed crops. W.R. Grace & Co. is the registrant. Additional neem products are available, but only registered for insect and mite control on some specific non-food/non-feed crops.

Potential forest management uses of neem include nursery production of tree and shrub seedlings, and tree improvement programs. Forest applications may be permitted if developed.

Forest Service researchers and partners were well represented in presentations. Forestry scientists presented nine studies in a morning-long session on forestry uses, and additional relevant studies in other sessions. FS-NAPIAP (National Agricultural Pesticide Impact Assessment Program) sponsored two studies and FS-TDP (Technology Development Program) sponsored one study. Four Forest Service Research scientists presented findings of their studies.

I observed several recurring themes about the future -

There is no other silver bullet; IPM strategies must be developed for each crop/site.

Chemical alternatives may be known for many situations, but are not registered in direct competition with cheap and effective methyl bromide. Private sector registration of promising compounds such as methyl iodide is unlikely until MB cancellation is imminent.

MB has been overused in some cases as low-cost insurance against recurring pest organisms before a serious infestation develops. We will develop IPM strategies for various situations where cultural and biological controls may be substituted, albeit often with lower efficacy than methyl bromide.

The differential effect of the more restrictive U.S. regulations, compared to the Montreal Protocol, cause great concern for phytosanitation and other export-import issues. Speculation and interest in legislative "relief" from the 2001 deadline is high.

A copy of the conference proceedings may be requested from:

Margie Killacky
Methyl Bromide Alternative Outreach
3425 N. First, #101
Fresno, CA 93726

Phone: 209-244-4710
FAX: 209-224-2610

For further information -

CONTACT: GARY SMITH (OR) (503) 326-2728

EPIDEMIOLOGY FACES ITS LIMITS

(From *Science*, Vol. 269, July 14, 1995)

This 6 page special report discusses the conflicting nature of epidemiologic studies, human health risk, study design and bias, press reports, and positive vs negative correlations.

"The news about health risks comes thick and fast these days, and it seems almost constitutionally contradictory. In January [1994] of last year, for instance, a Swedish study found a significant association between residential radon exposure and lung cancer. A Canadian study did not. Three months later, it was pesticide residues. The *Journal of the National Cancer Institute* published a study in April reporting—contrary to previous, less powerful studies—that the presence of DDT metabolites in the bloodstream seemed to have no effect on the risk of breast cancer. In October, it was abortions and breast cancer. Maybe yes. Maybe no. In January of this year it was electromagnetic fields (EMF) from power lines. This time a study of electric utility workers in the United States suggested a possible link between EMF and brain cancer but—contrary to a study a year ago in Canada and France—no link between EMF and leukemia."

"As Michael Thun, the director of analytic epidemiology for the American Cancer Society, puts it, 'With epidemiology you can tell a little thing from a big thing. What's very hard to do is to tell a little thing from nothing at all.'"

For a complete copy of the article -

CONTACT: JACK BARRY (CA)

(916) 757-8342

ANTS

(From *Pest Management Bulletin*, Vol. 16, No. 2, March 1995)

Description and Habits: Most ants found in and around homes nest outdoors and enter a home only to look for food. Different species of ants have various food habits. Some like sweet materials and others like seeds, grease, or protein-rich foods. Ants periodically produce mating swarms with large numbers of winged males and females that emerge from the colony and fly. While most ants cause only a nuisance problem by foraging for food inside a building or forming nests in unwanted areas, such as playgrounds or lawn areas, pharaoh ants and carpenter ants can nest indoors, and carpenter ants occasionally damage wood."

"Field ants (*Formica* species); among the most common ants found in homes and around buildings. They are generally dark brown or black and medium size (3 to 7 mm) and nest in loose soil found around rocks and foundations.

Cornfield ants (*Lasius* species) make their nests in fields and around homes. Nesting sites can be brick or stone walls, cracks in the pavement, beneath rocks, and in openings around foundations. They do not nest in the house, but often forage inside in search of sweet materials. Cornfield ants generally are small (2 to 2.5 mm) and brown or black in color.

Carpenter ants (*Camponotus* species) are the largest ants (6 to 10 mm) and often are black, red or dark brown. Some eastern plains species are lighter in color.

Harvester ants (*Pogonomyrmex* species) are fairly large (4 to 8 mm), and red or dark brown in color. Harvester ants clear the vegetation from the area around the nest and produce conspicuous mounds. They are seed feeders and rarely enter homes.

Pavement ants (*Tetramorium caespitum*) commonly make their nests around foundations, under rocks and in cracks of sidewalks and driveways. They are small ants (2.5 to 4 mm) with a dark body, pale-colored legs and antennae, and have a series of grooves on their face. Pavement ants forage on a variety of food that includes grease, meat, small seeds and sweets.

Pharaoh ants (*Monomorium pharoanis*) are one of the most persistent and difficult ants to control. They are small (1.5 to 2 mm) and yellow or pale reddish-brown. Unlike most other ants, pharaoh ants adapt well to nesting indoors. They spread their colonies throughout a building and readily split into smaller colonies when disturbed. Pharaoh ants like a wide range of food, which includes syrups, jellies, grease, cake, and pet foods. They are a serious pest in hospitals, dormitories and apartments.

Thief ants (*Solenopsis molesta*) are small (1 to 1.5 mm) and sometimes confused with pharaoh ants. They nest indoors and outdoors and often live in the nest of larger ants. They forage and feed on a variety of foods that include grease, sweets and meats.

Imported Fire Ants (*Solenopsis invicta*) are an aggressive species. The workers are 1.6 to 5.8 mm long. Nests occur in loose soil and may be up to 60 cm tall and 60 cm wide and contain up to one-quarter million workers. They are a very aggressive species."

“Management and Control: An important step to any ant control program is to remove attractive food. Crumbs, grease, food scraps and other food is sought by foraging worker ants and they will return to areas where food is found. If ant-feeding bait is used as a control, it's important to remove other food so the ants concentrate on the bait and not the food.

Most nuisance ants nest outdoors. Perimeter treatments with residual sprays applied around foundations can prevent many ants from foraging indoors. For more permanent control, destroy nests. Dusts usually are more effective on nests than sprays because dusts are more readily tracked into the colony. Slow-acting insecticides are most useful since they allow the forager to return the poison in the food to be fed around the colony, killing queens and young. (Note: all use and sales of ant baits that contain sodium arsenate have been banned since 1989.) Several brands of ant baits or ant traps are sold.”

For a complete copy of this article -

CONTACT: PAT SKYLER (CA)

(916) 757-8343

MANAGING RESISTANCE QUESTION UNANSWERED

Harry Cline

(From *California-Arizona Farm Press*, November 4, 1995)

“Management of the new transgenic Bt cottons will not be ‘plant it and forget it.’ Far from it.”

“These new transgenic Bt cottons will be susceptible to insect resistance buildup just like a pesticide. Wall-to-wall Bt cotton will have much the same effect on an insect population as repeatedly spraying a field of cotton with the same pesticide or class of pesticide. Eventually, there would develop a worm population that would be resistant to the toxins used to control them.”

“...Carlos Reyes of Visalia, Calif., Monsanto’s local development manager, says the basic foundation has been decided and it will be based on a five-step approach:

Using sound IPM practices on all cotton and allowing beneficials to work and not using Bt pesticides on the transgenic cotton.

The use of pest refuges where non-Bt cotton or other crops would be planted nearby, but not treated with Bts.

The use of a small acreage of untreated worm-susceptible traps crops.

Monitoring for worm resistance to the Bt gene within the transgenic cotton. Monsanto has established standards to detect resistance buildup and these will be made available to pest control districts, universities and others who will monitor pest populations in Bt cotton fields.

And, finally the continual development of new generations of Bollgard Bt genes and the combining of genes to ward off resistance.”

FOREST PROTECTION HISTORY

Current Practices and Future Trends in Forest Insect Control

R. E. Balch
Dominican Entomology Laboratory
Fredericton, NB

This paper was presented at the joint annual meeting of the Canadian Institute of Forestry and the Society of American Foresters, Montreal, November 1952 and published in *The Forestry Chronicle*, Vol. 29-1 (March 1953).

- “1. Forest insect control must be approached from an ecological point of view and based on a knowledge of the ecology of the insect populations concerned and the forest types in which they occur.
2. The ultimate objective is prevention of destructive outbreaks by biological or silvicultural methods of improving natural control and resistance of the forest. This objective, however, will never be completely reached, and direct methods must be employed in those cases where the indirect methods are not possible, or have not yet been put into practice.
3. Aerial spraying with insecticides has been developed to a point where it is a practical method in certain cases. It should be used with discretion, but boldly when necessary for the preservation of a valuable forest. Instead of disturbing the 'balance of nature', it may in such cases serve to correct a lack of balance already present, and prevent the further disturbances that would follow the death of the stand. Its long-term effects, however, need careful study.
4. Direct methods such as spraying should not conflict with biological or silvicultural methods, but should complement them. Good forest management is an essential basis for prevention or control. Progress toward the creation of more resistant forests, however, may need to be protected by spraying in order to prevent the complete disruption of management plans. No method is a cure-all. Each pest and each outbreak is a separate problem. The trend should be toward a wider and more effective application of all three methods as our knowledge increases through research and experience.”

Balch credits F. C. Craighead, former Entomologist in Charge, Division of Forest Insect Investigations, Bureau of Entomology and Plant Quarantine and author of *Insect Enemies of Eastern Forests* (1950) with bringing entomologists and foresters closer together and to increasing collaboration of forest entomologists in Canada and the US. Note that the forest entomology and pathology sections of this former bureau exists today in the Forest Service as Forest Pest Management.

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BOOK AVAILABLE ON BIODEGRADATION AND BIOREMEDIATION OF TOXIC CHEMICALS

“*Biological Degradation and Bioremediation of Toxic Chemicals* presents a wide range of topics authored by researchers on the cutting edge of biodegradation and bioremediation. These researchers show how genetic and molecular biological methods are used to improve the ability of microorganisms to degrade a variety of substances. More importantly, the book provides future directions of biotechnologic research and applications for mitigation of pollution and bioremediation of polluted environments.”

This hardcover book is available for \$69.95 plus S&H from: Timber Press, Inc., 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527, (503) 227-2878, Fax (503) 227-3070.

NEW JOURNAL AVAILABLE

The journal, *Biocontrol Science and Technology*, brings professional and academic researchers the latest developments in the fields of biological pest, disease and weed control. The research papers, review articles and short communications encompass both basic research and the technological development and application of biocontrol measures. Recent articles have covered arthropod, nematode, plant disease and weed biocontrol.

For additional information contact Carfax Publishing Company, 875-81 Massachusetts Avenue, Cambridge, MA 02139, phone (800) 354-1420, Fax (617) 354-6875.

REGISTERED PESTICIDE GUIDE

(From *CPM (Crop Protection Manager)*, *California/Arizona*, Vol. 8, No. 5, Fall 1995)

“More than 18,000 products are listed in the revised edition of **Federally Registered Pesticides**. Products are listed by the trade name, manufacturer’s name or the EPA registration number.”

For price and more information -

CONTACT: NORTH AMERICAN COMPENDIUMS (MI) (810) 985-5028

PUBLICATION - 50 WAYS TO PROTECT GROUNDWATER

(From *CPM (Crop Protection Manager)*, *California/Arizona*, Vol. 8, No. 5, Fall 1995)

“Protect groundwater and cut costs by applying crop protection chemicals more efficiently with tips and information in **50 Ways Farmers Can Protect Their Groundwater**. The book offers practical ideas for selecting and using insecticides and herbicides, field scouting, pesticide application, container disposal and more. The guide also features profiles of growers who have successfully used the management techniques described in the book.

For more information about publication MCR522, contact the University of Illinois, Office of Agricultural Communications and Education at (217) 333-2007.

NOXIOUS WEED MANAGEMENT SHORT COURSE PLANNED

The Western Society of Weed Science is sponsoring the fifth annual Noxious Weed Management Short Course to be held April 22-25, 1996 in Bozeman, MT. This is an excellent and valuable training session that has received rave reviews from participants in the past. Course agenda includes: weed identification, biological control of weeds, herbicides in the environment, use of computers in weed science, noxious weed management on range and pasture, weed inventories and planning, and safe handling of pesticides and use of application equipment. Tuition is \$350 and the **registration deadline is February 15**. For additional information -

**CONTACT: CELESTINE DUNCAN (MT), Course Coordinator (406) 443-1469
ED MONNIG (MT) (406) 329-3134**

USDA FOREST SERVICE AGRICULTURE HANDBOOKS AVAILABLE

The Forest Health Technology Enterprise Team-Davis office has an extra copy of the following Agriculture Handbooks:

Forest Management Chemicals - A guide to use when considering pesticides for forest management. 1983. Agriculture Handbook No. 585.

Pesticide Background Statements - Volume I. Herbicides. 1984. Agriculture Handbook No. 633.

Pesticide Background Statements - Volume III. Nursery Pesticides. 1987. Agriculture Handbook No. 670.

Pesticide Background Statements - Volume IV. Insecticides. 1989. Agriculture Handbook No. 685.

Remember the publication of these handbooks was coordinated by Dennis Hamel and Max Ollieu.

If you would like any of these publications -

CONTACT: PAT SKYLER (CA) (916) 757-8343

UPCOMING EVENTS

16-18 January 1996. **17th Annual Forest Vegetation Management Conference**, Red Lion Inn, 1830 Hilltop Drive, Redding CA. Contact: Joe Sherlock, USDA Forest Service, Mi-Wok Ranger District, (209) 586-3234.

16-19 January 1996. **1996 USDA Interagency Gypsy Moth Research Forum**, Loews Annapolis Hotel, Annapolis, MD. Contact: Kathy McManus (203) 230-4330, Fax (203) 230-4315.

21-26 January 1996. **IX International Symposium on Biological Control of Weeds**, South Africa. Contact: J.H. Hoffmann, Zoology Department, University of Cape Town, Rondebosch 7700, South Africa. hoff@botzoo.uct.ac.za

23-24 January 1996. **National Forest Pest Management Directors meeting** (hosted by Region 5), Fountain Suites Hotel, 321 Bercut Drive, Sacramento, CA (800)767-1777 or (916)441-1444. Contact: John Neisess (415)705-2567.

5-9 February 1996. **Forest Insect Management Course**, Sault Ste Marie, Ontario Canada. Contact: Eileen Harvey, FPMI, (705) 757-5740 ext. 2251, Fax (705) 759-5728, E-Mail: Eharvey@pmoeafpm.fpmi.forestry.ca

4-7 March 1996. **17th Vertebrate Pest Conference**, Sonoma County Red Lion Hotel, Rohnert Park, CA (about 50 miles north of San Francisco). Contact: John E. Borreco at (415) 705-2873 for additional information.

8-12 April 1996. **North American Forest Insect Work Conference, Forest Entomology: Vision 20:21**, St. Anthony Hotel, San Antonio, TX. Contact: Ron Billings (409) 639-8170, Fax (409) 639-8175; or Evan Nebeker (601) 325-2984, Fax (601) 325-8837.

9-11 July 1996. **National Steering Committee for Management of Seed, Cone and Regeneration Insects**, Bend, OR. Contact: Roger Sandquist at (503) 326-6222.

13-18 July 1996. **International Summer Meeting American Society of Agricultural Engineers (ASAE)**, Phoenix, AZ. Contact ASAE (616) 429-0300.

17-18 July 1996. **National Spray Model and Application Technology Steering Committee Meeting**, Phoenix, AZ. Contact Jack Barry (916) 757-8342.

18-23 August 1996. **Joint IUFRO Conference on Population Dynamics, Impacts, and Integrated Pest Management of Forest Defoliating Insects**, Banska Stiavnica, Slovak Republic. Contact: Mike McManus (203) 230-4321, Fax (203) 230-4315; or Sandy Liebhold (305) 285-1609, Fax (305) 285-1505.

CALL FOR ARTICLES

Please forward to me by the 15th of next month all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects and Timely Tips. Please send them in the following format: Brief title and a summary or abstract that doesn't exceed one page in length. Please include the name, State, and telephone number of the individual who can be contacted for further information.

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PUBLICATIONS, REPORTS, AND PRESENTATIONS

Barry, J.W. and H.W. Thistle. 1995. Developing technology - A forest health partnership. In *Proc. of the 1995 national silviculture workshop, forest health through silviculture*, 145-152. Mescalero, NM, 8-11 May.

Bush, P.B., S.S. Chapman, Y.C. Berisford, and J.W. Taylor. 1995. Use of FSCBG to predict pesticide deposition on a Piedmont pine seed orchard. *Southern Journal of Applied Forestry* 19(4):145-150.

Hoffard, W.H., D.H. Marx, and H.D. Brown. 1995. The health of southern forests. USDA Forest Service, Southern Region, Atlanta, GA.

Maczuga, S.A. and K.J. Mierzejewski. 1995. Droplet size and density effects of *Bacillus thuringiensis kurstaki* on gypsy moth (Lepidoptera: Lymantriidae) larvae. *Forest Entomology* 88(5):1376-1379.

Racke, K.D. and C.K. Robb. 1995. Fate of chlorpyrifos in the turfgrass environment: Dissipation and mobility. Poster presented at the *society of environmental toxicology and chemistry second world congress*. Vancouver, British Columbia, Canada, 5-9 November.

Skyler, P.J. and J.W. Barry. 1995. Bibliography of pesticide application technology. FPM 95-12. USDA Forest Service, Forest Health Technology Enterprise Team, Davis, CA.

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team and the Pesticide-Use Management and Coordination Group co-sponsors and distributes this informal newsletter as a means of providing current information to forestry pesticide users. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, 2121C Second Street, Davis, CA 95616; E-Mail to: /s=p.skyler/ou1=r05h@mhs-fswa.attmail.com or by DG to: P.Skyler:R05H. Reference to a commercial product or source in this newsletter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor or the USDA Forest Service guarantees the accuracy of the information provided in this *Short Subjects*. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

